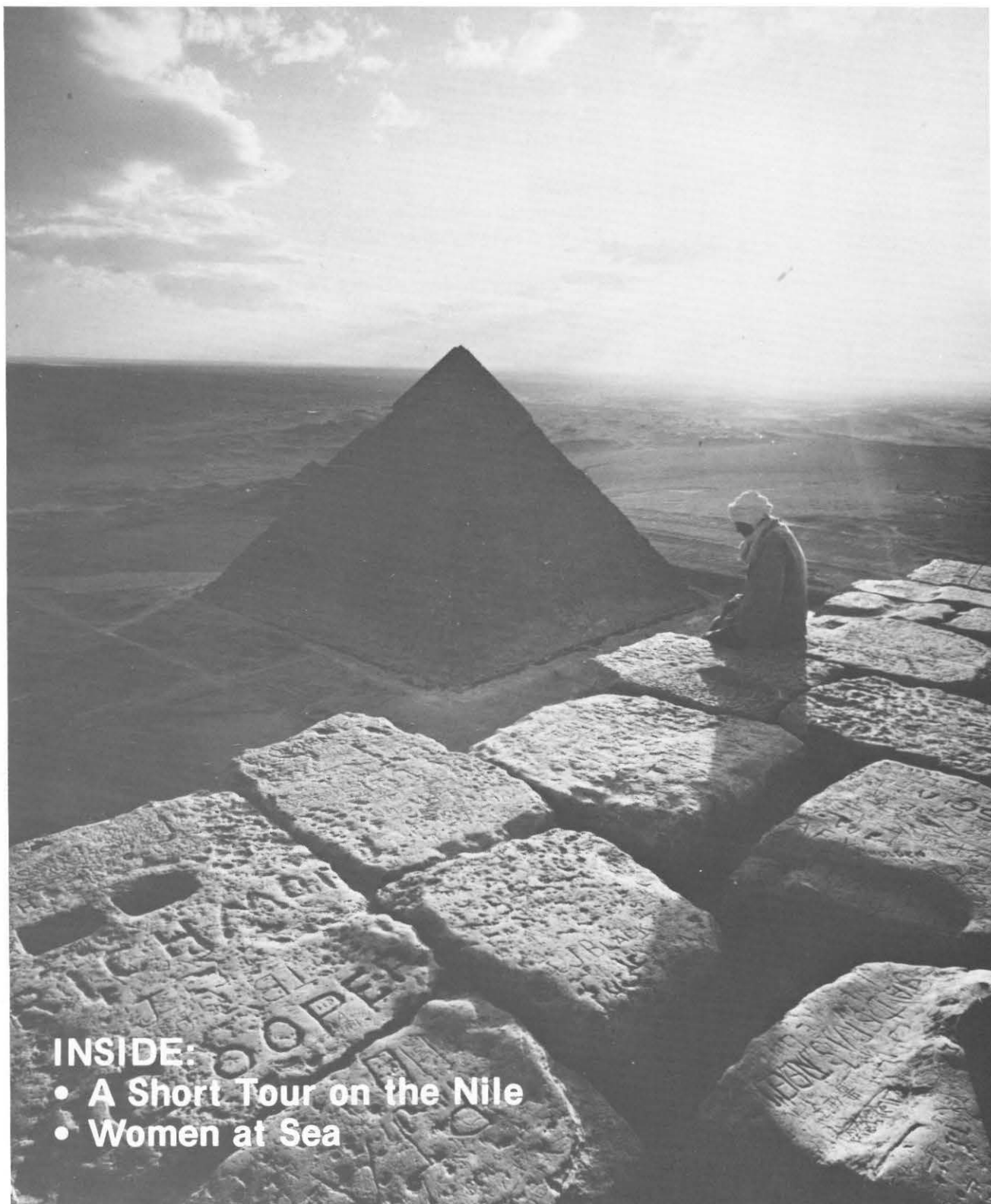


# U.S. NAVY MEDICINE

September 1981



## INSIDE:

- A Short Tour on the Nile
- Women at Sea

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# U.S. NAVY MEDICINE

Vol. 72, No. 9  
September 1981

## 1 Department Rounds

Physician "Retires" to the Navy  
*SGT B.A. Morton, USMC*

## 3 Features

Department of Medicine and Surgery, Confederate States Navy  
*LT W. Kenneth Patton, MSC, USN (Ret.)*

## 6 On Growing Children—Bowel Training Breakdown

*CDR E. Breger, MC, USNR*

## 8 Women at Sea: A Female Physician's Viewpoint

*LCDR K.S. Buchta, MC, USNR*

## 13 Movement of Patients From Naval to VA Treatment Facilities

*LCDR W.R. Moses, MSC, USN*  
*Herbert L. Pelham*

## 17 Professional

A Short Tour on the Nile  
*LT J.E. Lasner, MC, USNR*

## 23 Vertical Extrusion of Endodontically Treated Teeth

*CAPT D.D. Antrim, DC, USN*

## 29 Pseudofolliculitis Barbae

*CAPT W.S. Draper, MC, USN*

**COVER:** View atop the Great Pyramid at Giza. For over 30 years, the Navy has conducted infectious disease research at Naval Medical Research Unit #3 in Cairo, Egypt. A medical student's experiences at the Unit is the subject of this month's cover story on page 17. Photo by Winfield Parks (c) National Geographic Society.

# Physician "Retires" to the Navy

With a wealth of experience that spans 36 years, a physician decided to give up a lucrative civilian practice and join the Navy—at age 58.

"Giving it all up" and coming into the Navy to CDR Lawrence E. Giffen, Sr., MC, is a fulfillment of a goal. "I always wanted to be a naval medical officer," Dr. Giffen said, "but, I also wanted a practice of my own."

So, after medical school, instead of going to sea, Dr. Giffen opted for a civilian practice. "However, within the past few years, I realized that I had accomplished most of the goals I had set for myself," he continued, "and the same things were beginning to become repetitious."

One day, at age 56, he came home from his Jefferson, MO, office and his wife Jerena asked him how his day had been. He said, "Fine. I had a rather normal day except that I joined the Navy, and I'm going to Okinawa for a few years."

He didn't really know what type of response he would get. "She looked at me and said, 'Really? You know the plumber never did come today.'"

"Of course," he added, "my move to a new career at my age came at a time when Jerena wanted to pick up her career as a writer after 27 years." With her resuming her career, he felt their separation would go much easier.

After waiting two years for the processing to be completed and to

allow time to find someone to take over his practice, Dr. Giffen headed for San Diego for a two-week indoctrination. He would also put on the rank of commander because of his years of experience in the medical profession.

"The Navy put everything I have ever done medically in the computer, and it spit out the rank I should have. It also specified 1962 as a year of rank because of my experience," he said. "I also had to learn a few 'ins and outs' of living in the Navy." During the indoctrination period, his commanding officer told him that practicing in the Navy is like belonging to a family. "I think this is true," said Giffen. "However, there is a little difference; there is no medical competition in the military. That is, no one steals your patients. There's plenty to go around for everyone," he continued with a hearty laugh.

Since Dr. Giffen has been at Camp Kuwae, NRMC Okinawa, he has held the position as Chief of Outpatient Services and he's been working mostly in dermatology. "I'm a family practitioner, but that includes so many things. I have delivered over 2,500 babies, I've been a surgeon, and have had lots of experience in dermatology, even though I've never practiced it exclusively," he said.

For a while, however, he will be working in different surroundings. He will be seeing patients at Camp Foster's Evans Clinic, which will give

him a chance to diagnose more than dermatology problems. "I look forward to this venture," Dr. Giffen said. "Since I don't have the same background many commanders have, my CO has been very good in exposing me to Navy life."

One of those exposure trips dropped him in the middle of several amphibious operations with hundreds of Marines, one of which was the recent Team Spirit exercise in Korea. He said the Team Spirit was "one of the highlights of my time here; I have the greatest respect for Marines."

The Missouri physician finds it rewarding to be able to work with and treat many people from different walks of life. That rewarding feeling tends to show and it permits others to see that he cares.

"Dr. Giffen embodies what we like to think of as the complete physician," said fellow physician, CAPT James C. McGlamory, Director of Clinical Services and Acting commanding officer at the Center. "Obviously any professional has to be well-trained and certainly Dr. Giffen is a physician with a broad base of experience," he continued. "He's a physician who's a real person, a person with real humanistic qualities who knows how to relate to people and has the capacity to love. Without that quality, a physician can practice the science of medicine, but not the art of medicine."





*Dr. Giffen sutures a patient's arm during emergency room treatment.*

According to Dr. McGlamory, the qualities Dr. Giffen possesses are beneficial to the Navy. "He brings to us a network of ideas that can be incorporated into our system, such as how some medical problems are approached in the private sector," McGlamory said. "There is really not that much of a difference," Dr. Giffen added, "except that in the Navy there is a close-knit feeling. There is a good rapport that we've all developed here and it is an enjoyable experience."

"Although I happen to have gotten out of medical school 36 years ago, I'm as active and healthy as I ever have been." Dr. Giffen thinks his practice in the Navy will prove to be a challenge. "So far I have enjoyed it very much, but I told my family that when and if practicing medicine in the Navy ceases to be fun, I won't practice any more. I'll just go back home and see if the plumber showed up."

—Story by SGT B.A. Morton, USMC. Photo by LCPL Lloyd Wainscott □



# Department of Medicine and Surgery, Confederate States Navy

LT W. Kenneth Patton, MSC, USN (Ret.)

When the United States Navy was created, the model was the British Navy. Similarly, when the Confed-

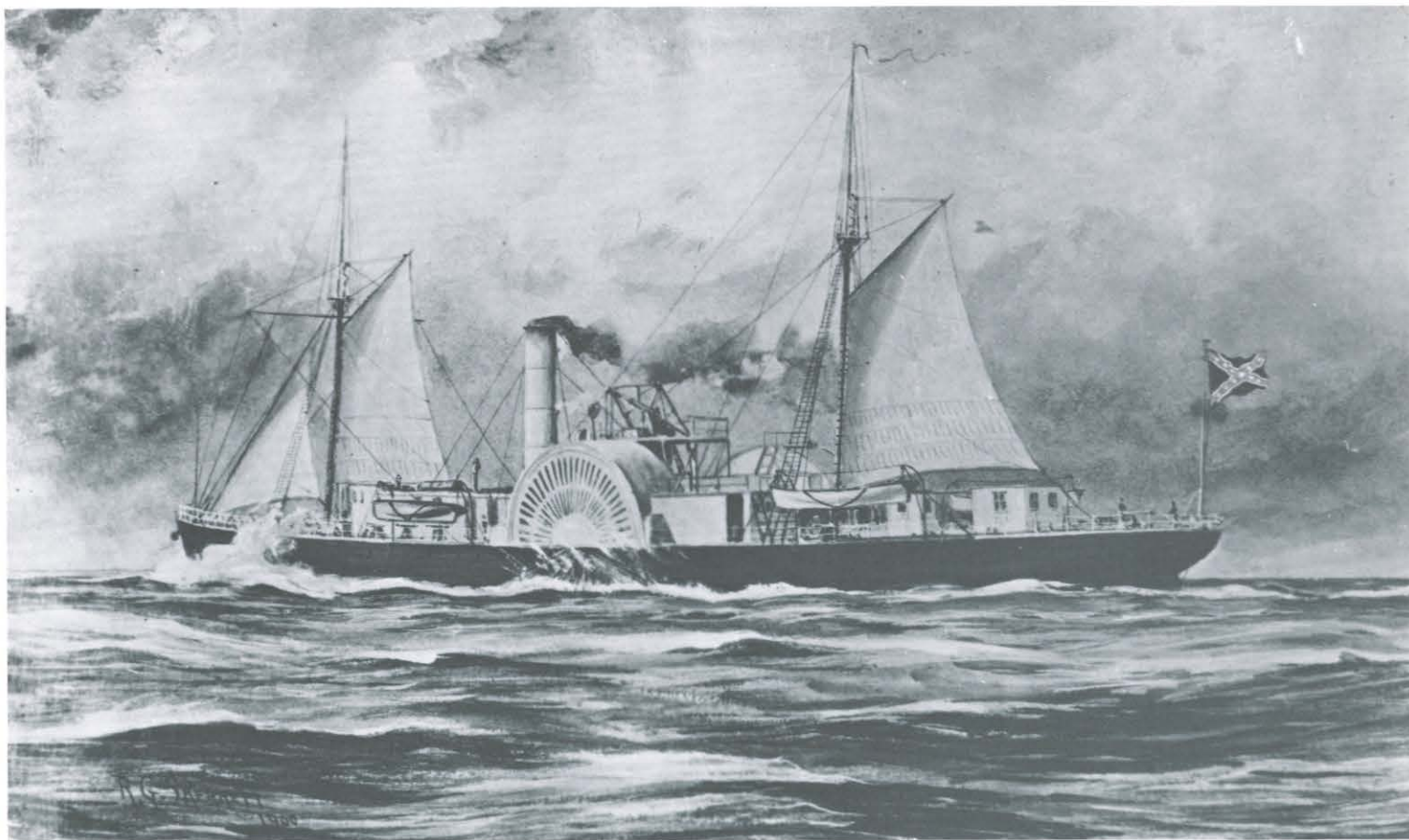
erate States of America determined to go it alone in 1861, few differences existed between its navy and the federal force from which it was derived.

The Office of Medicine and Surgery, Confederate States Navy, was

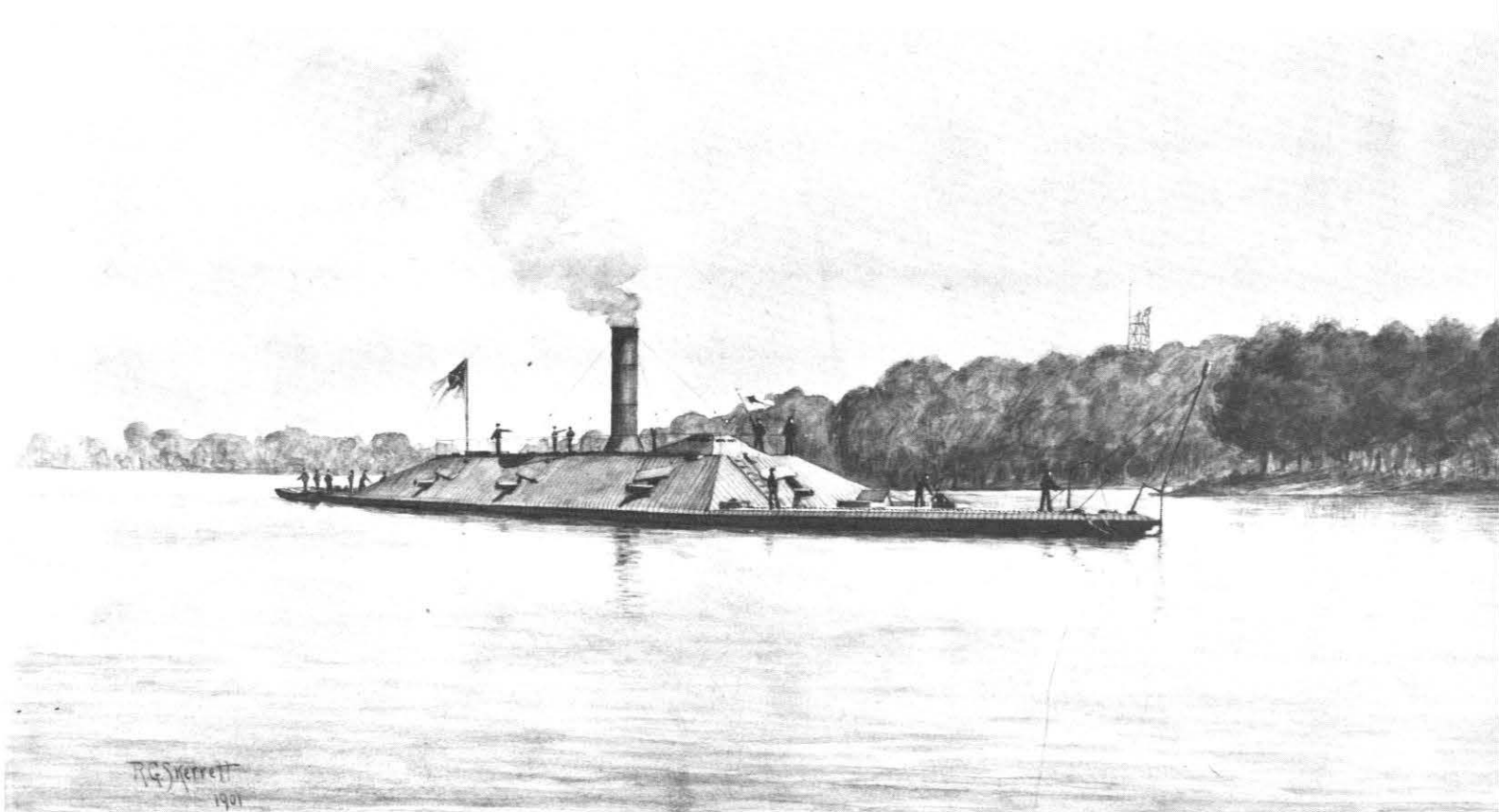
headed by Surgeon W.A.W. Spotswood, CSN. Dr. Spotswood was one of 47 medical officers who either resigned their federal commissions or were dismissed during the Civil War. Dr. Spotswood resigned to join the Confederacy, even though he had

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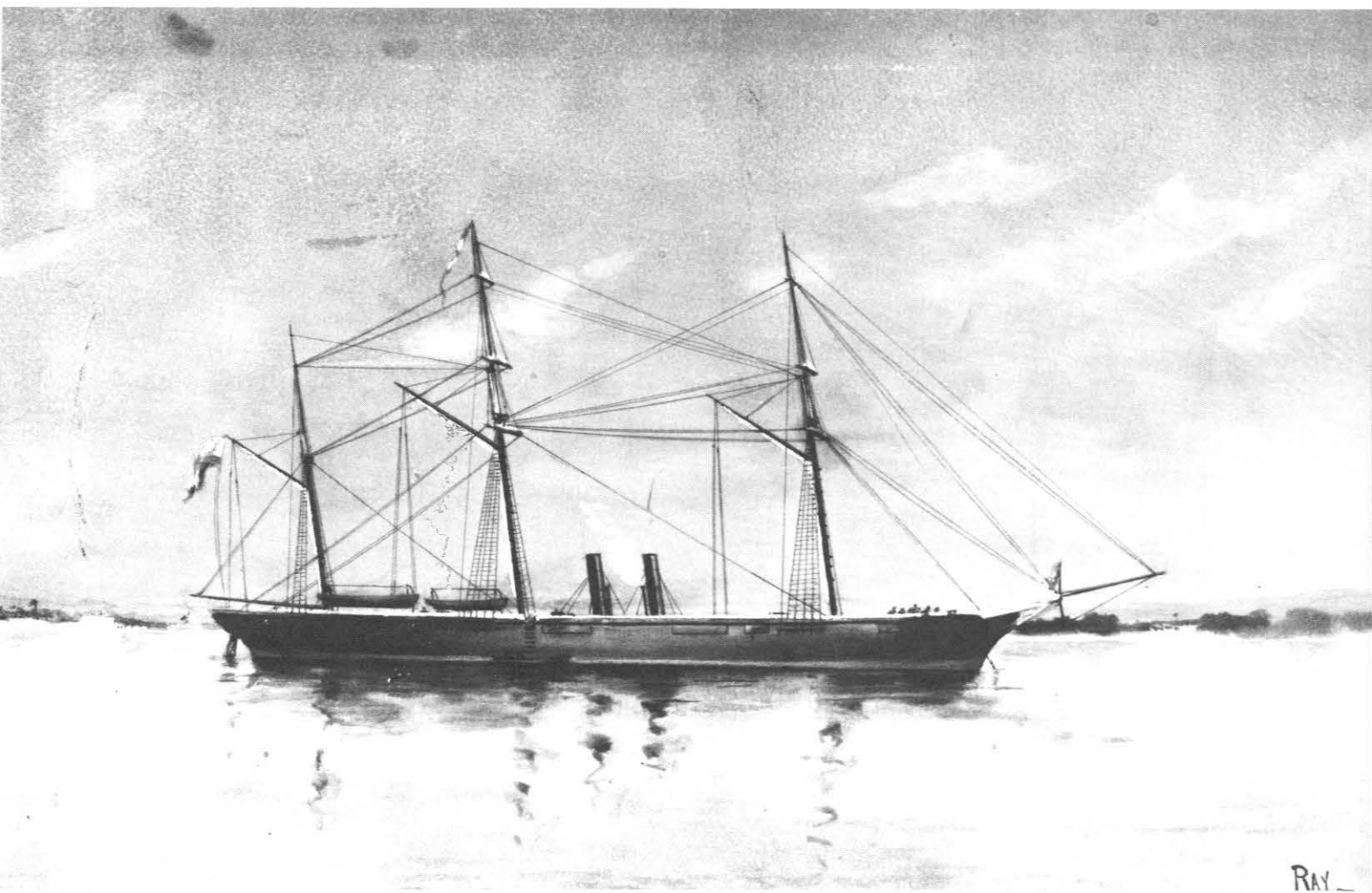
LT Patton was for many years Editor of the *Hospital Corps Quarterly* and BUMED Historian. He now resides in Villas, NJ.



*Confederate blockade-runner Ella and Annie. After her capture in 1863, she became USS Malvern.*



*Two vessels of the Confederate Navy: the ironclad CSS Atlanta and CSS Florida. Florida, the first commerce raider built for the Confederacy in England, captured and destroyed tons of Union shipping before being captured in Bahia Harbor, Brazil by USS Wachusett in 1864.*



served 33 years as a U.S. Navy physician.

The authorized allowance of medical officers in the Confederate States Navy was about 100: 25 surgeons, 15 passed assistant surgeons, and 57 assistant surgeons. In fact, nearly half the medical officers in the Confederate Navy Medical Department once had served in the U.S. Navy.

The organizers of the Confederate States Navy had recommended that the Medical Department be headed by a Director General, with the rank of brigadier, but this recommendation was not acted upon favorably, since all existing documents signed by Dr. Spotswood were as "Surgeon in Charge."

The effectiveness of the Union blockade doomed the Confederacy almost from the beginning. Dependent upon her agrarian economy, the South had precious little industrial capacity and had to import practically everything except food. Not only was it difficult to get war supplies into southern ports, it was equally difficult to get her agriculture products out.

In order to pay for imports, her commodities had to be shipped through the blockade. There was an ample market for cotton, the principal product, in England and elsewhere, but thousands of bales piled up on wharves with little chance for much of it to get out.

By the summer of 1863, the Union Navy had captured more than 800 blockade-runners that had tried to run the gauntlet. Blockade-running was a precarious occupation, yet with high profits as a reward for success, attempts continued throughout the war.

In 1861, domestically produced drugs had been stockpiled, but many medicines had to be imported. By the beginning of the following year, procurement began to be a serious problem as the stranglehold of President

Lincoln's navy grew tighter. By November 1864, Dr. Spotswood reported that: "... owing to the strict blockade of the seacoast and harbors of the Confederacy . . . I feel that there will necessarily be much difficulty in procuring many valuable articles soon required for the use for the sick. Every effort has been made to procure a large supply, but in vain, and it is to be regretted that the supply of cotton placed in the hands of the Navy agent at the port of Wilmington cannot be sent to Bermuda to purchase more or to pay for the medicines that have been received."

The profit motive and weaknesses in human nature compounded the export-import dilemma. Despite the crying need for war supplies, many blockade-runners brought in expensive luxuries. It was more profitable to bring in silks, jewelry, French brandy, coffee, and the like. It is said that coffee selling for \$.12 a pound in Bermuda brought no less than \$2.75 in Richmond. Cargo spaces devoted to these luxuries diminished the space required for sorely needed chemicals, iron, clothing, and medical supplies.

Dr. Spotswood was assisted in the Office of Medicine and Surgery by three apothecaries-chemists. Confederate Navy Department headquarters in Richmond purchased and distributed most of the drugs and other medical supplies available. Many of these supplies were delivered by these apothecaries to the naval hospitals and stations.

The Confederate States Navy hospital system included facilities at Richmond, VA, Charleston, SC, Savannah, GA, and Mobile, AL. Dispensary/hospital capability was available at Wilmington, NC, Yazoo City, MS, St. Marks, FL, Columbus, GA, Chattahoochee, FL, and Charlotte, NC, as well as some lesser important bases. Two steamers,



*Dr. Daniel B. Conrad served aboard CSS Tennessee and treated Confederate ADM Franklin Buchanan's wounds at the Battle of Mobile Bay on 5 Aug 1864.*

*Spray and Chattahoochee*, were used at least part of the time as hospital ships.

Complete and accurate statistics relative to morbidity and mortality rates in the Confederate States Navy are not available. Those reports that have survived from CSN hospitals indicate about the same rates as in the Union Navy. This is no small wonder. In essence, the patients received their basic treatment by medical officers cast in the same mold.

## References

1. *Official Records of the Union and Confederate Navies of the War of the Rebellion*, Series II, Volume 2, 1921.
2. *Civil War Naval Chronology 1861-1865*, Navy History Division, Navy Department, Washington, DC, 1971. □



## On Growing Children

# Bowel Training Breakdown

CDR Eli Breger, MC, USNR

**"Mudpies gratify one of our first and best instincts. So long as we are dirty, we are pure." Warner**

In the normal course of events, toilet training becomes well established between the second and third years of life. Attentive mothers recognize establishment of bowel control as a gradual process during which the child works through a number of consecutive phases. First, evacuation is conditioned to eating and occurs shortly after a meal. The mother takes advantage of this observation and succeeds by placing the child on the toilet at such instances. In time, the child masters voluntary control and asks to be taken to the toilet. Further along the way, a child will be able to inhibit the desire until a convenient time and place is available. This last phase represents true bowel control. Growing from phase to phase demands adaption thereby stressing the immature coping capacity of the child. This may cause periods of vulnerability with breakdowns in controls and backsliding.

### Toilet Training Process

Training for bowel control is ideally started at about 18 months of age.

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Dr. Breger is Chief of the Psychiatry Service at the Naval Hospital, Beaufort, SC 29902. Copyright 1981 by Eli Breger, M.D. All rights reserved. May be reprinted or reproduced within the Navy for nonprofit educational purposes in keeping with the fair use doctrine.

There is usually at this time a readiness of intellectual development with nerve and muscle maturity of the central nervous system and bowel wall. A depth of maternal-child relationship has evolved which is necessary for carrying out what amounts to a complex and diligent negotiation between two people. This corresponds developmentally to the period when there is a major investment of emotional energy by the child in this part of his body and in the bowel movement itself. As such, psychoanalysts have referred to it as the "anal phase." In addition to bowel training, many other socializing demands are being made by the parents. They recognize the child has reached an age where they need not only give to him but should also ask certain things of him as well. The youngster recognizes that for the first time he has reached a point in physical and mental development when he can say, "no" to demands. It therefore follows that bowel training may not successfully be accomplished or may breakdown in a regressive fashion after having been completed. To have bowel movements in places other than the toilet, beyond the age of three and in the absence of physical disease is medically referred to as "encopresis." As in the presentation of most childhood psychiatric disturbances, boys predominate five to one over girls. The frequency of the condition is in excess of three percent of elementary school-age children. Val-

id statistics would probably be considerably higher. However, there is much shame and disgust surrounding this problem which hinders parents from reporting it, even to their trusted physicians. Interestingly, although bedwetting is also a breakdown in training for a similar eliminative function, it is a vastly different condition, far more benign in importance, reflecting much less personality disturbance and responding more readily to treatment.

### A Delicate Negotiation

To focus on causes involves consideration of issues occurring on three separate levels: the fundamental personality of the child, child-maternal relationship at the time of training, and the training techniques themselves. On the first level, we must be aware that a child comes into the world with early indications of a variety of personality traits and tendencies. One sees this in the hospital nursery when infants may show strong, willful, and negativistic dispositions. These children will be prone to resist socializing attempts particularly if mismanaged by their parents. A child can have intense emotional investment in the toileting process and be resistant to change despite parental demands.

The relationship between parent and child and the techniques of training are of paramount importance. Reduced to its simplest dimension, toilet training involves a child who

receives pleasure doing what comes naturally, when and where he wants to. In order to train successfully, the mother must undertake a delicate negotiation with her child. She asks him to forego the pleasure and freedom of his way and take on a pattern she desires. Few children would respond did they not understand on their own primitive level that their relationship with their mothers is of vital importance to them. Because they wish to maintain its intactness, they give in to her wishes as they love her and are willing to please her. Moreover, she implies that with successful training, he will be rewarded with praise, recognition, and increased acknowledgment of his maturity. It therefore follows that success in training correlates closely with stability and soundness in the child's relationship with his mother.

### Types of Training

The technique used in the training process has great significance. Mothers fall into three groupings designated according to degree of demand put upon the child. There is the "high pressure and coercive" parent. She starts to train too early and often completes the process rapidly. She uses physically coercive and rigid methods involving putting the child on the potty frequently, threatening the child with withdrawal of love, and shaming him should he not produce. She can hit the child and use suppositories, purgatives, and enemas. These children become trained early but are prone to breakdowns under stress. The child tends to be over conscientious with a high degree of personality organization. He sets excessively high standards for himself with perfectionistic and rigid traits. He is prone to shame, guilt, and anxiety and is emotionally inhibited. It is as if the training went too far and the child, rather than resisting it, accepts it with excessively strong defenses against the impulse to soil. When such children relapse, they soil

their pants for varying periods of time, try to hide their soiled underwear, and deny to themselves and their parents that the problem exists. In my experience, these children stain small amounts of fecal material rather than large amounts. They are willfully holding back the urge to defecate and can do so only for a time before some liquified material oozes out and soils their underclothes. This has been referred to as "paradoxical diarrhea." At times they are so retentive, their abdomens become exceedingly full, cause pain and discomfort, and require medical intervention. This has been referred to as "psychogenic megacolon," referring to a psychologically induced overly large bowel. In very young children, it can mimic Hirschsprung's disease, a condition in children born without the proper nerve endings in their large intestines.

Toward the middle of the training spectrum, there are "normally pressuring" mothers who start training at the desirable age, about 18 months, and use democratic and cooperative techniques with high rates of success.

Further along, we have the "low pressuring" mother who starts training late, is inconsistent in her approach, and generally is neglectful of the entire training process. These mothers have a very high tolerance for messiness and disorganization and rarely train for anything with diligence. Their children soil continuously, will very often wet the bed as well, and have low levels of aspiration and achievement. They are seen as socially and emotionally immature, poorly controlled, and prone to antisocial behavior. They are often rejected and neglected children.

### Advice to Mothers

On a corrective level, the maxim of an ounce of prevention is worth a pound of cure is very apt. This problem can be prevented. Training should take place at the appropriate

age and in the appropriate manner provided a reasonably positive relationship exists between mother and child. However, where a soiling problem does exist, effective therapeutic intervention depends in great measure on an adequate understanding of the mismanagement in training.

The continuously soiling child emanating from a "low pressure" and disorganized parent essentially needs strenuous retraining. Attention should be paid to placing the child on the toilet at regular intervals following meals, sitting with him, urging him to perform and consistently adhering to this program. Attempt to motivate him to gain mastery and generally add structure and organization to his life. Basic psychologic work must be done with the mother to enable her to function more effectively with the child.

The soiling child coming from a "high pressure" training and environment also requires retraining as he has lost touch with his bowel condition and must reestablish this. He needs decreased parental pressure, introduction of gentleness into the training, and help in relaxing more adequately. His feelings of shame and guilt should be converted into a realistic desire to overcome what is a socially debilitating condition. A pediatric approach of some merit with children whose soiling reflects a holding back involves administering increasing quantities of mineral oil by mouth to prevent the retentive process. The child therefore has very loose stools. The method is understandably combined with diligent and frequent toilet training. Intensive parental counseling and child psychiatric intervention are often necessary where the condition is longstanding and becoming a mutually destructive struggle between mother and child.

**"Children should be led into the right paths, not by severity, but by persuasion." Terrence** □

# Women at Sea: A Female Physician's Viewpoint

LCDR Katherine S. Buchta, MC, USNR

The course of Navy history changed dramatically when in 1978, for the first time, a woman's voice was audible over radio circuits from ships afloat and the figure hanging over the side of the ship painting was that of a female. When women were assigned to duties aboard ship, the whole world watched, commanding officers watched, and television and newspapers watched. The skeptics said there would be too many problems and the program would fail. Were there problems? Sure, many, but after solving each as it arose, the program is going strong some three years later. The incorporation of women into the traditional man's Navy at sea involved changes in the structure of the ship, changes in Navy policy, and most importantly, changes in attitudes. As the first female medical officer on board USS *Samuel Gompers* (AD-37), these are my observations of how our command successfully implemented the Women at Sea Program.

## Women at Sea Program

The Women at Sea Program, implemented in November 1978, assigned 53 women officers to 14 ships and 396 enlisted women to five ships. By FY 80, 120 women officers were

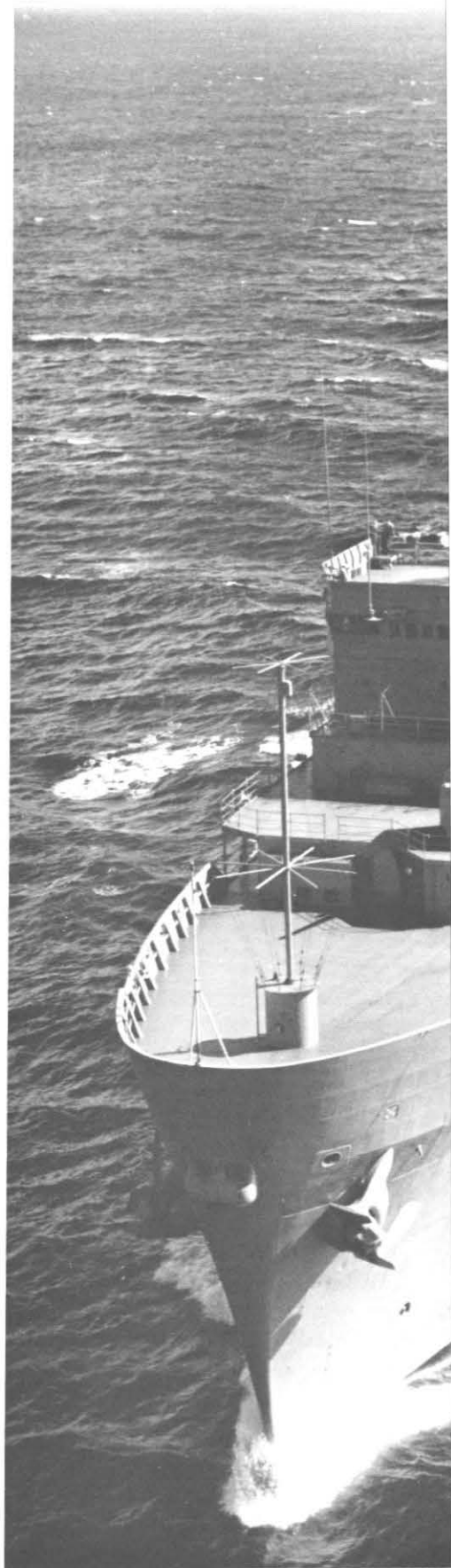
serving 27 ships and 694 enlisted women were aboard 10 ships. Long-range plans included 190 women officers and 5,000 enlisted women to be on sea duty by 1985.

Initially, in 1978, two female officers were assigned to *Samuel Gompers*, one as legal officer and one as assistant supply officer. By 1979, the quota of female officers had grown to four including the medical and operations officer. Approximately 90 of the 100 enlisted females allotted reported to *Gompers* over a one-year period to fill vacant billets in all departments—engineering, repair, operations, medical and dental, deck, and weapons. The women received training in their respective careers along with their male counterparts with the exception of billets not currently open to women such as gunners mate and certain aviation billets.

The incorporation of women aboard ship was not easy. Months of preparation took place before the first female ever crossed the brow. The ship had to undergo numerous physical rearrangements—providing a separate berthing compartment for women, designating and remodeling male into female heads, redesigning the Medical Department to include exam facilities and equipment for treating gynecologic disorders, and creating private ward space for hospitalized women. The crew and their

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Dr. Buchta is currently with the Department of Urology, NRMCC San Diego, CA 92134.







spouses were prepared for the arrival of women aboard ship through many indoctrination lectures and sessions where questions could be asked and opinions voiced. For the most part, feelings were generally positive about the female additions to the crew. Navy wives, fiancées, and girlfriends indicated that the majority accepted the situation.

The women were prepared for their arrival to shipboard duty with lectures and, where possible, indoctrination visits aboard ship to preview the environment and talk to women already working at jobs they would soon be required to perform.

The reactions of the women were varied. The majority found the experience much like what they were prepared for and approached their new role very professionally and enthusiastically. They were there to do a job and found the prospect of going to sea exciting. There were individuals, however, mostly younger nonrated women fresh out of boot camp, who were overwhelmed by the new environment. They voiced complaints of having to live with 80 other girls, the lack of privacy, the confining nature of the ship, and their periodic "home" moves from port to port. The dissatisfied women handled their grievances in the same way as their male counterparts, usually addressing the chain of command to change their duty station but on occasion resorted to UA (unauthorized leave), missing ship's movement, etc., but in a much smaller percentage than the males.

Once women were integrated into shipboard life, the phase of "testing the system" occurred. The women soon found out that the disciplinary system worked as justly for them as

*USS Samuel Gompers*

their male counterparts without favoritism because of their sex. Fraternization or sexual harassment would not be tolerated—men who treated a woman as other than a professional coworker would be dealt with just as severely as the woman who falsely accused a male of making sexual advances toward her. Some women found just the opposite problem; the men were so willing to help, it interfered with the women doing their jobs. Through counseling by senior female petty officers and women officers aboard, the women learned assertiveness and tact, thus gaining confidence and professionalism in their careers.

In the course of the few years women have been aboard ship, they have proved to be as effective, if not slightly ahead of their male counterparts, when qualities such as dedication to duty, demeanor, grooming, and discipline are considered. However, they fall slightly behind males in leadership qualities. Nevertheless, within a year, the men and women aboard *Gompers* were working harmoniously to accomplish the ship's mission.

### Why It Worked

In retrospect, two major factors allowed the integration of women at sea to progress so successfully. First, a strong chain of command existed as did many mature, compassionate, open-minded individuals who paid meticulous attention to details. When women reported aboard ship, the traditional chain of command, by necessity, had to be slightly modified. Usually all members of one department berth together. Domestic problems in the berthing compartment are handled by the same leading petty officer who handles problems in the work center. Since women from all departments live together, a special chain of command for the berthing compartment had to be created, requiring all departments to provide compartment cleaners, wake-up watches, security watches,

etc. It became necessary for all department heads to support the women's chain of command in order to maintain a safe, sanitary, functioning living space. In addition, the women had a specific person to contact for problems related to living arrangements. By enforcing the chain of command for both males and females, complaints were handled justly and without favoritism. The absolute fairness, firmness, and amount of concern exhibited by the commanding officer—no more, no less than for men—was crucial. His philosophy to downplay the much generated publicity of women aboard ship served to reinforce the fact that all were there to do a job.

On the other hand, universal concern to the problems women faced aboard ship for the first time allowed the program to succeed. Having a female medical officer aboard during this initial phase of the Women at Sea Program enabled women to have an avenue by which complaints or concerns could be voiced. Often the psychosomatic complaints of a female crewmember could be traced to problems in the work center or berthing compartment and could be handled before they became a major problem. The majority of the women's complaints were, for the most part, not indicative of psychiatric illness but rather indicated what could be called "growing pains"—adjustment reactions of young individuals to a new situation. Nevertheless, as medical officer, I spent significant time listening to women's feelings about their new environment as well as the reactions of the males to the situation.

The Fleet Mental Health Unit, composed of psychiatrists and psychologists, became acutely aware of the problems and attitudes of afloat commands with women. When women were referred with possible adjustment reactions, often part of the interview was conducted aboard ship with the referring medical officer and division officer present so the

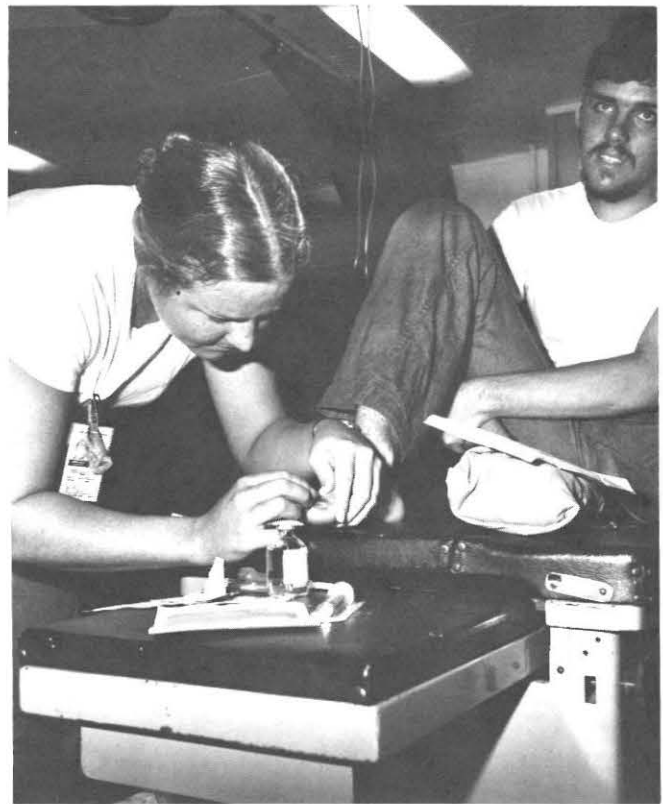
psychiatric counselors could better appreciate for themselves the impact this new situation was having on the crew's lives. In addition, the confidence of the medical environment enabled women to seek advice about interpersonal relationships, birth control, and other sensitive issues without having the rest of the ship or work center know of the problem.

Women were also able to discuss interpersonal relationships as well as drug and alcohol problems with the enlisted female director of the Counseling and Assistance Center (CAAC) on board. Because the CAAC was a division of the Medical Department aboard *Gompers*, an exchange of information between the CAAC director and the medical officer provided maximum counseling benefit to the individual without jeopardizing that individual's privacy. Important also was the fact that the men showed no hesitancy to discuss their personal problems or physical complaints with the medical officer or CAAC director. It really made no difference what sex the individual was who listened to a problem as long as they were a concerned, open-minded, caring individual who then would follow through with an appropriate response in the best interest of the individual and the ship.

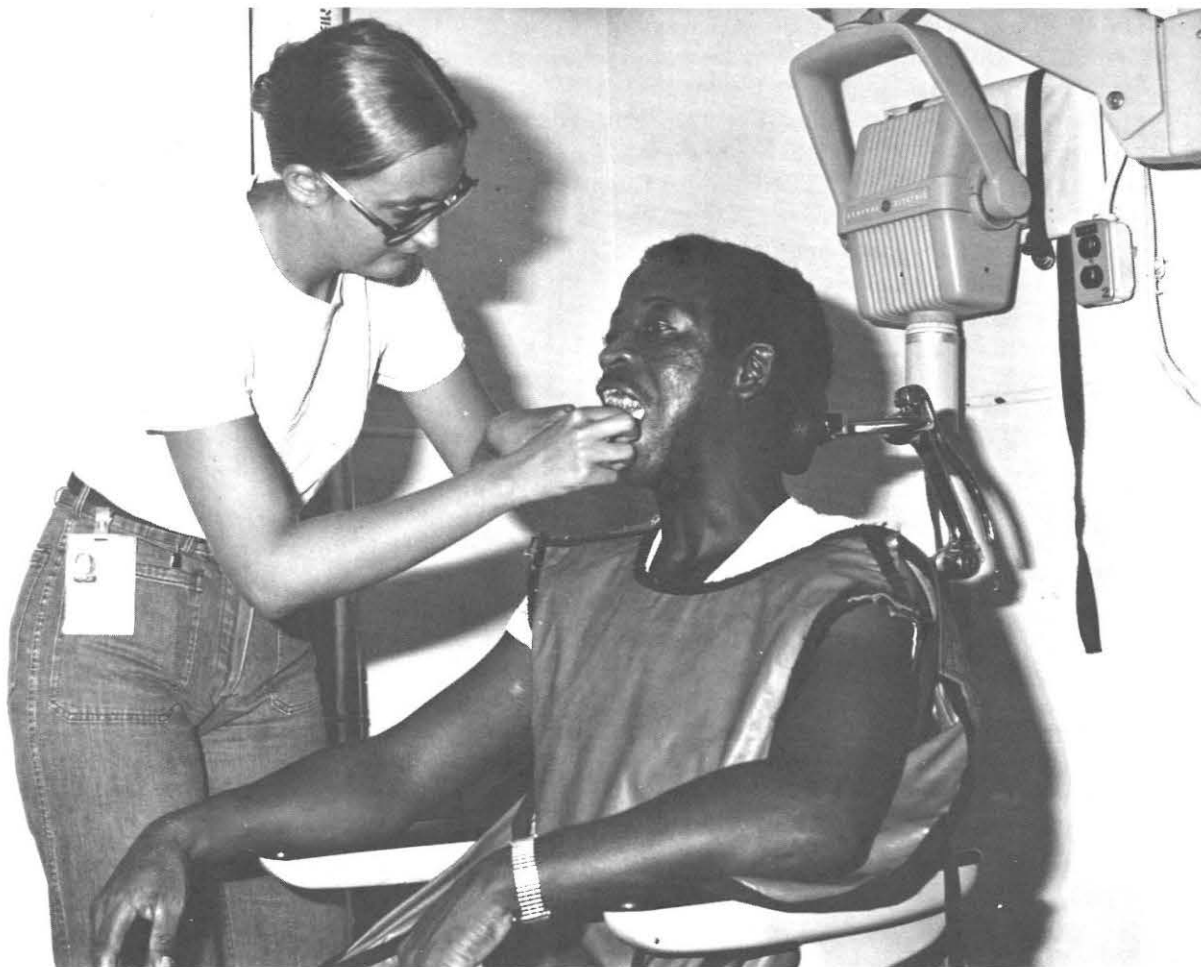
The Executive Officer kept himself acutely aware at all times of any problems concerning women at sea and often counseled women with personal problems. Periodically, as Navy policy and ship's instructions were changed to facilitate the integration of women at sea, the Executive Officer would gather the women together to explain the change in policy and be open for questions regarding its effect upon them. In addition, problems dealing with women aboard ship were openly discussed in the Human Relations Council and promptly resolved.

### Remaining Problems

The most significant problems with women at sea stemmed from current



*Women in Gompers' medical and dental departments help share the workload.*





Navy policy regarding marriage of women to other service members and pregnancy. Under existing policy, transfer to shore duty cannot be denied for one party when both service members are assigned to sea duty. Since it is the woman who is most frequently transferred, the Women at Sea Program suffers. The reason given by women in the past for transfer had been that if both husband and wife were assigned to sea duty, neither could receive Basic Allowance Quarters (BAQ) but could receive this substantial increase in pay if one member was at a shore command. However, in 1980, the law was changed to allow one member of a seagoing team to receive BAQ and hopefully this reason for transfer will be eliminated. Similarly, the immediate transfer of one member married to another service member on the same ship is absolutely necessary to maintain professional decorum. The problem exists with couples who intend to marry but wait until just before deployment to do so, causing unnecessary disruption at a critical time in ship's manning. Although a command can require advance notice of impending marriage, no mechanism exists to identify these individuals to detailers until the marriage actually occurs.

Perhaps the largest problem facing the Women at Sea Program is the issue of pregnancy. When women first were assigned to sea, Navy policy dictated that a pregnant woman had the option to be transferred to a shore command or discharged from the Navy before an extended deployment and not later than two months before the medically-projected delivery date. This policy allowed the command to make arrangements to replace the individual without an unplanned loss. In 1979, problems occurred when the ship was required to perform underway local operations for four to five days and consulting obstetricians at the regional medical center made recommendations that the woman should not go underway.

Based on recommendations from the Force Medical Officer, the woman was evaluated for any possible complication of her pregnancy by the shipboard medical officer and if none existed, went underway for a short period of time as long as a medical officer was aboard and medevac capabilities could be assured. If any medical contraindication existed, she was placed at a shore command until the ship returned.

In April 1980, Navy policy dictated that a pregnant woman could not go underway. She was to be made available for transfer to a shore facility immediately upon diagnosis of pregnancy. This decision created significant problems for those afloat commands with women. Since replacement of unplanned losses is slow, often taking three to six months, immediate transfer of a pregnant member in a critical billet poses a significant hardship to a ship whose crew is already undermanned, especially when ship's movements require the member's presence.

Although a woman is required to complete her sea duty tour when her child is delivered or the pregnancy is terminated, she still has a relatively easy way to get off the ship and rid herself of the imminent problem of sea duty. The advantage, obviously, is that the pregnant female is removed to an area that is optimally equipped to deal with obstetric emergencies in terms of both equipment and specially trained physicians. Recognizing fully that obstetric emergencies can be life-threatening, it is undoubtedly in the best interest of the pregnant female to be transferred to a shore command before a deployment as is the case with all crewmembers with existing medical conditions that could potentially be life-threatening. However, in conditions such as local operations where the ship carries a medical officer and has access to prompt medevac facilities, the policy appears to be unnecessarily conservative.

This attitude toward the pregnant

female also carries into the work centers. The policy that pregnant women would not be required to go underway was interpreted by many to mean they would not have to do their fair share of the work, creating morale problems in the work centers and justified resentment by men and women who were required to fill in for the pregnant crewmember. It was my opinion, as medical officer, that pregnancy was not a disease and would not be treated as such. I encouraged all department heads to follow the policy that all crewmembers were required to put in the same amount of time to get the job done. If the pregnant member had to be in sick bay for three hours in the morning due to morning sickness than she was required to work three extra hours in the afternoon when she felt better. In our experience, when we followed this policy, the problem of using pregnancy as an excuse from work ceased to be significant. Needless to say, the issue of pregnancy under the current policy has created not only administrative headaches but hardships to the ship in terms of morale and unplanned losses. This problem takes on added significance when one considers the fact that since the Women at Sea Program began, 15 percent of the women assigned to sea duty aboard *Gompers* have been transferred because of pregnancy.

In summary, women assigned to shipboard duty have done well in terms of job performance. Sexual harassment and fraternization have not proved to be significant problems when handled with conscientious discipline. Career-minded women have found equal opportunity in training. The issue of pregnancy still remains the largest deterrent to the program's final success. The majority of problems incorporating women into shipboard duty are over and the Navy now looks proudly on her crews, both men and women, working together to accomplish the ship's mission. □

# Movement of Patients From Naval to VA Treatment Facilities

LCDR W.R. Moses, MSC, USN

Herbert L. Pelham

In 1951, President Truman sent a memorandum to the Secretary of Defense concerning disabled service personnel. In it, the President recognized the need to have disabled service members moved to Veterans Administration (VA) rehabilitation centers as soon as possible after injury. Attached to that memorandum was the report of a Presidential committee which had been formed to consider the utilization of VA facilities in providing care for all incapacitated service members, regardless of the reason for the incapacitation. The committee recognized that one of the largest patient categories that would require care in VA facilities would be the neuropsychiatric group. They also found that determinations regarding the likelihood of return to duty and rehabilitation requirements in each instance should be made as soon as possible after recognition of the incapacitation.

President Truman's interest in disabled service members resulted in a memorandum of understanding between the Department of Defense and the VA. Officials of both agencies agreed that hospitalization in VA facilities should be provided to certain military personnel on the same basis as veterans with service-connected disabilities. The VA agreed to provide specialized medical

care and rehabilitation services to those members transferred by uniformed services facilities. The basic consideration in such transfers was to have been the welfare of the patient, with an attendant reduction in the overall national demand for critical medical personnel. This was to have been effected by caring for patients in one organization rather than having the VA, Army, Navy, and Air Force duplicating facilities and personnel.

Since the inception of the original agreement, several replacement agreements have been negotiated. A key point in all of them has been the recognition that patients destined for VA facilities should be identified and moved expeditiously. The military services, however, failed to develop and install mechanisms to insure that the program would function as it was designed. Military officials promulgated regulations and instructions with the assumption that field commands could or would make the system work. Therefore, no arrangements were made for a centralized control/checkpoint at any headquarters level.

During the past 30 years, VA officials have occasionally accused the military services of being slow to identify and move patients who had the potential of becoming VA beneficiaries. Military officials have countered this argument, contending that military facility commanders have been doing an adequate job with the resources at hand, and that such criticism had a weak basis. A review

of the situation gave rise to the contention that these defensive postures have been based on inadequate analysis of available data. One such exchange of statements gave rise to this study which is the first known attempt by any military service to analyze the problem of slow movement of patients to the VA and propose solutions.

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**VA officials have occasionally accused the military services of being slow to identify and move patients who had the potential of becoming VA beneficiaries.**

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In May 1980, Max Cleland, then Director of the VA, presented the Navy Surgeon General a set of documents alleging that the Navy was doing an inadequate job in the movement of patients to VA control. The documents cited seven individuals who were transferred over a six-year period. Upon investigation, four patients were found to be members of the naval service and only one had been retained under military control for a prolonged period without sufficient reason. The Surgeon General used this information to counter the VA's claim. Cleland, a triple-limb amputee as a result of injuries sustained in Vietnam, was not convinced inasmuch as he had experienced

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firsthand the operations of the patient movement system. He contended that, because of bureaucratic red tape, the services and programs available through the VA and under the uniformed services are usually delayed and, in some instances, never delivered. Cleland was personally committed to helping resolve any problems veterans face in moving from the military environment to

civilian life, especially difficulties encountered upon discharge from a military medical facility. His determination to be of assistance to all veterans, especially the disabled, was the driving force behind this study.

#### Data Analysis

To determine the magnitude of the problem, the decision was made to

have the Naval Medical Data Services Center, Bethesda, MD, supply data on all patients transferred to the VA for the calendar years 1978 and 1979. Only two years were analyzed as older information was suspect and data for 1980 were not available. To determine the length of patient stay variables and any correlation between teaching and nonteaching facilities, the data were grouped ac-

**TABLE 1. Active Duty Navy and Marine Corps Members Transferred to VA by Naval Medical Treatment Facilities Calendar Year 1978**

Transferred by	Number of Patients	Average Composite Sick Days	Average Occupied Bed Days	Average Psychiatric Sick Days	Average Psychiatric Occupied Bed Days	Average Other Sick Days	Average Other Occupied Bed Days
<b>Teaching Facilities</b>							
1	34	73	70	97	97	61	54
2	91	67	67	80	80	30	30
3	105	64	57	66	58	59	56
4	33	53	53	73	73	42	42
<b>Nonteaching Facilities</b>							
1	1	9	9			9	9
2	5	40	40	44	44	21	21
3	23	94	80	97	82	67	61
4	28	36	34	32	32	67	51
5	23	62	61	74	73	40	35
6	4	92	78	96	80	77	72
7	100	46	46	52	52	15	15
8	31	79	74	87	85	51	36
9	29	60	60	64	64	2	2
10	4	11	11	35	35	7	7
11	3	15	15	1	1	22	22
12	2	66	66	66	66		
13	38	56	56	59	58	27	27
14	2	51	37			51	37
<b>Overseas Facilities</b>							
1	2	46	46	56	56	35	35
2	4	6	6	20	20	1	1



cording to transferring medical facility. Data included patient category to rule out or confirm time delays caused by the rank of the patient. To determine workload by diagnosis, the World Health Organization diagnosis codes were included for each patient.

An analysis of available data indicated that the Navy was incorrect in its contention that naval medical facilities were doing an adequate job

in transferring patients to the VA. On the contrary, the facts indicate that considerably lengthy delays were evident in the movement of patients in all diagnostic categories. Tables 1 and 2 depict the data by hospital type for calendar years 1978 and 1979. The data indicates that a specific grouping of diagnoses are responsible for the majority of sick days. To be specific, psychiatric patients con-

sumed more inpatient days before transfer than did any other category of patient being transferred. This situation was found to apply to all medical facilities. No specific reason could be identified to account for this trend.

Close examination of the data revealed that patients with certain diagnosis codes within the psychiatric grouping were responsible for the

**TABLE 2. Active Duty Navy and Marine Corps Members Transferred to VA by Naval Medical Treatment Facilities Calendar Year 1979**

Transferred by	Number of Patients	Average Composite Sick Days	Average Occupied Bed Days	Average Psychiatric Sick Days	Average Psychiatric Occupied Bed Days	Average Other Sick Days	Average Other Occupied Bed Days
<b>Teaching Facilities</b>							
1	44	67	66	76	76	50	48
2	36	51	51	39	39	81	81
3	65	70	67	75	75	64	55
4	21	40	40	29	29	51	51
<b>Nonteaching Facilities</b>							
1	38	38				38	38
2	47	88	86	88	87	88	73
3	35	25	23	24	24	32	23
4	23	68	68	72	72	30	30
5	1	5	5			5	5
6	8	74	59	71	61	95	38
7	72	49	49	56	56	4	4
8	32	76	75	85	84	13	13
9	16	60	60	64	64	3	3
10	12	44	44	47	47	1	1
11	15	82	82	83	83	66	66
12	1	52	40			52	40
13	1	1	1	1	1		
14	13	42	38	42	38		
<b>Overseas Facilities</b>							
1	1	1	1			1	1
2	1	7	7			7	7
3	3	2	2			2	2
4	1	1	1	1	1		



high extended average length of patient stay. The responsible diagnoses are the psychoses, more specifically the schizophrenic psychoses. Of the 449 patients transferred to VA facilities in 1979, 352 psychiatric with 296 specifically psychotic. Further study of the 296 revealed that 269 suffered from a schizophrenic psychosis. As a group, the 352 psychiatric patients utilized 22,020 sick days in 1979 for an average of 63 sick days per patient. In comparison, patients who were transferred with other diagnoses, excluding spinal cord injuries, consumed 4,353 sick days for an average of 37 sick days per patient. When the data for 1978 were compared with that of 1979, the only notable differences were the average sick days for head and brain injury patients and patients with fractured vertebrae. These patients' average sick days for 1979 nearly doubled the average for 1978 although no apparent cause could be ascertained.

The question was raised whether graduate training facilities might be keeping patients, for teaching purposes, longer than nongraduate training facilities. In responding, graduate training facilities indicated that no patients had been retained for this purpose. An analysis of the data indicated that patients with the same diagnosis actually stayed fewer days in graduate training facilities. No plausible explanation could be found for this phenomenon except that graduate training facilities usually have better resources for diagnosing and moving patients and are located in large metropolitan areas with superior supporting health care services nearby, if needed.

By law, military health care facilities are designed, constructed, and funded for acute short-term patient care. The industry standards set by the American Hospital Association specifies that an acute short-term admission is one with an expected length of patient stay of 30 days or less. Tables 1 and 2 indicate that pa-

tients destined for the VA were kept far in excess of the industry standard. A SECNAV instruction requiring expeditious movement of certain patients to the VA, states that patients who are unlikely to return to duty and those in need of rehabilitation services should be identified within the first 10 days of hospitalization and concurrent plans made for their transfer to the VA. It is obvious that these rules are not being followed in the majority of cases.

In a memorandum of understanding dated 5 Dec 1980, Dr. John H. Moxley III, Assistant Secretary of

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**If such patients are allowed to remain in uniformed service facilities for any reasons not associated with the best interest of the patient and the government, a costly and self-defeating situation is created.**

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Defense (Health Affairs) and Dr. Donald L. Custis, Chief Medical Director of the VA, agreed that "... to provide the best possible care for active duty military patients who sustain spinal cord injuries . . . the general goal will be to effect transfer in three days (four days from overseas), and in no instance to exceed 12 days, past injury for transfer." To promulgate the requirements of the memorandum of understanding and amplify the requirements to move other categories of patients in a more timely manner, BUMEDINST 6320.11 is being revised.

#### **Proposed Solutions**

In analyzing the movement of patients to the VA, it has become apparent that the solution to the problem requires both Bureau and field level actions. The Bureau has ini-

tiated its action with the signing of the memorandum of understanding and revision of its implementing instruction. The recommendations are made for field commands to establish controls for the rapid identification, tracking, and disposition of active duty patients unlikely to return to duty. One such control could be the use of "anticipated lengths of patient stays" applied to the most frequently encountered diagnoses involved in past untimely transfers. When a patient's hospital stay approaches the "anticipated length of stay," a review of the circumstances could be made to determine the individual's likelihood of return to duty. At this time, an exception can be made for patients likely to return to duty but who need additional hospitalization in excess of the "anticipated length of stay." In conjunction with the use of "anticipated length of stay," field commands could establish mechanisms for frequent periodic reviews of hospital stays in other diagnoses that could lead to extended lengths of stay. Reasons can be ascertained and corrective action taken, if necessary.

In summary, the thrust of this article is toward the solution of the problem of unnecessary delay in the rapid identification and disposition of patients unlikely to return to duty. If such patients are allowed to remain in uniformed service facilities for any reasons not associated with the best interest of the patient and the government, a costly and self-defeating situation is created. As previously mentioned, uniformed service medical facilities are designed, constructed, and funded for acute short-term care and the return of patients to functional states that permit them to perform the duties of their grades/rates. To allow the use of such facilities for other than the mandated purpose could be detrimental to the patient, to service facilities, and could cause underutilization of VA facilities that are funded, staffed, and equipped to care for patients requiring long-term care. □



## A Short Tour on the Nile

LT Jay E. Lasner, MC, USNR

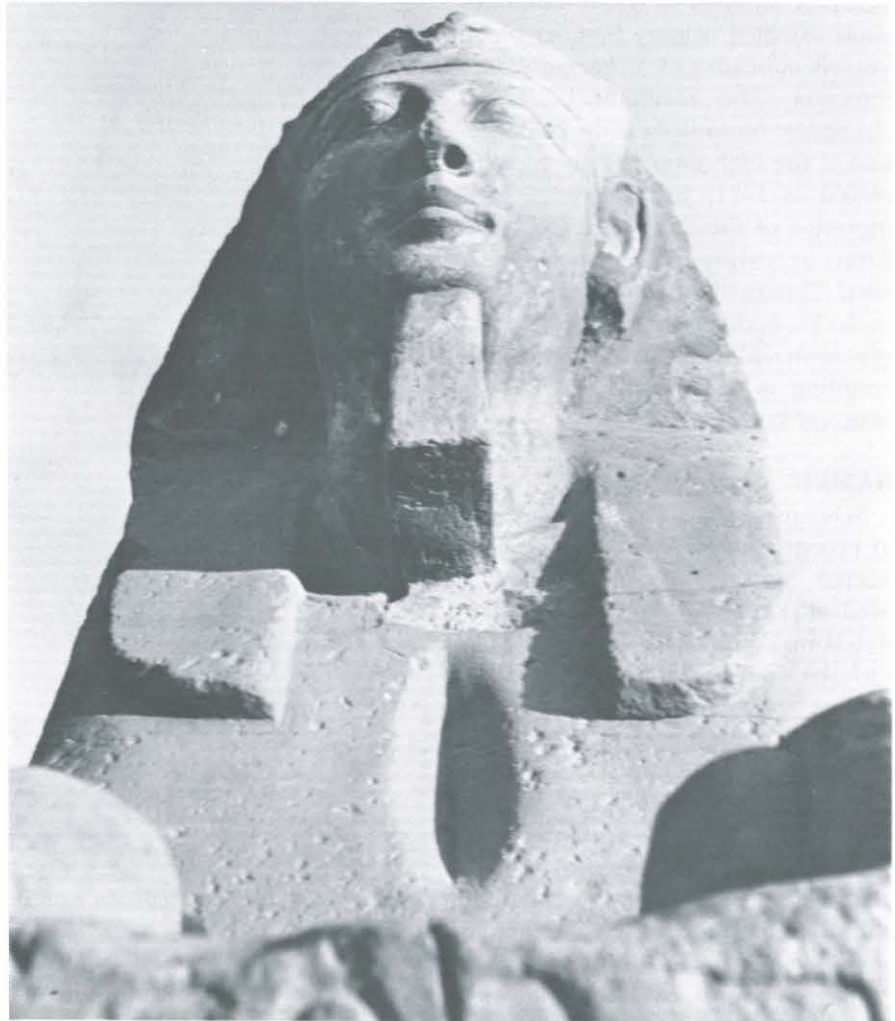
Since shortly after man first walked the Earth, disease has been the scourge of civilization. From the earliest archaeological remains, we have evidence that man suffered from tuberculosis, cancer, parasitic infections, as well as a host of other ailments still known to us today. Trepanned skulls attest to the efforts ancient man made in an attempt to manipulate the disease process. The similarities between strange ceremonies by the ubiquitous tribal healer and medicine man reveal disease's universality. Today, infectious disease remains a nemesis to most peoples of the world. Although public health measures have helped to make developed countries relatively disease-free, the rest of the world continues to suffer from the onslaught of TB, parasites, and bacterial infections. In many lesser developed countries, the average life expectancy is far less than what we enjoy in the United States.

### Historical Background

Disease in Egypt has been known and treated since ancient times. Indeed, Egypt had the finest physicians of the ancient world. Even today, portions of medical treatises such as the Edwin Smith Papyrus (ca. 1600 B.C.), show that Egyptian physicians

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This article is based on Dr. Lasner's experiences while assigned to NAMRU-3, Cairo, Egypt, January-February 1981. He is presently on the staff of NRMHC San Diego, CA 92134.



*Sphinx at Luxor*

recognized such conditions as localized suppurative inflammation and the value of incision and drainage in their treatment. They had an extensive pharmacopoeia and the ancient Egyptian could journey to Alexandria to receive his education from the finest medical teachers of the time.

The Nile River, which annually flooded the surrounding land, brought fertility to the parched soil.

Even as it brought life to the land, it brought disease. Parasites thrived in the slowly moving water and moist soil deposited by the river. Use of the Nile for bathing, drinking, sewage, and as the major source of fresh water perpetuated the infectious disease cycle five thousand years ago as it does today.

Perhaps the infectious disease best known in the Nile Valley is schistoso-

Photos by the author



miasis. Parasitic infection with the trematodes *Schistosoma mansoni* and *Schistosoma haematobium*, also known as bilharzia, has been recognized since ancient times. Recent autopsies performed on mummified human remains have revealed schistosome eggs in their livers. Roentgenographic analysis of these mummies show calcified urinary bladder blood vessels indicative of *S. haematobium* infection. The resultant ecological changes stemming from the construction of the high dam at Aswan, completed in 1971, has caused a proliferation of the snail (*Bulinus truncatus*) necessary for *S. mansoni* survival. This snail, an intermediate host in the life cycle of the parasite, now is prevalent in the Nile Delta region resulting in a further spread of *S. mansoni* into this area.

#### NAMRU

Schistosomal research is one area of investigation currently being conducted by scientists at the Naval Medical Research Unit No. 3 (NAMRU-3) in Cairo. Established in 1948 for the purpose of collaborative studies with Egyptian scientists on infectious diseases in the area, the Unit has continued to operate fully since that time. The NAMRU mission, according to the present Director, CAPT Raymond Watten, MC, is to investigate infectious diseases of military importance that are endemic or epidemic in its assigned geographical area. By studying the ecology, etiology, epidemiology, and immunology of infectious diseases prevalent in the Middle East, and in developing methods for their diagnosis, treatment, prevention, and control, NAMRU-3 continues to make substantial contributions to the knowledge about those diseases that cannot be adequately studied in the United States. To help fulfill this mission, construction was recently begun on a new biomedical laboratory facility to supplement the existing 30-year-old multibuilding complex.



Dr. Jim Gaines injects a baboon with cercariae of schistosomiasis.

I recently had the privilege of spending time at NAMRU-3, where medical scientists from all branches of the U.S. Armed Forces work side by side with Egyptian medical scientists quietly performing some of the world's foremost research in tropical medicine. As a senior medical student at Jefferson Medical College in Philadelphia, I went to Cairo under the auspices of CAPT John J. Dempsey, MC, Director of Medical Education at NAMRU. As an Armed Forces Health Professions Scholarship Program student, I had received

U.S. Navy Medicine. Tucked away on the last page of the July 1980 issue was an announcement about the Navy's training program in infectious diseases at NAMRU-3. Ever since studying microbiology and parasitology during my sophomore year of medical school, I had wanted to observe tropical medicine *in situ*. This was my chance.

In order to develop a general overview of clinical research in tropical medicine, I would spend time in NAMRU's various departments. Among my goals were to understand:



*The baboon tolerates the treatment well.*

- the pathogenesis and epidemiology of infectious agents;
- how infectious diseases are clinically manifested and diagnosed; and
- how the diseases are treated.

Accomplishing these goals meant spending time in the parasitology, bacteriology, virology, and immunology laboratories, as well as with the Veterinary Medicine Department. Considerable clinical correlation was made possible by the meningitis ward of the Abbassia Fever Hospital, the schistosomiasis wards at NAMRU-3, and by visits to a local univer-

sity hospital. As is true with all my medical studies, I was very interested in acquiring any special knowledge and techniques that would help me better serve the people for whose care I would be responsible during my Navy operational tour.

#### **Laboratory Experience**

I spent time in the Parasitology Department refreshing my memory on parasite identification during the early part of my stay at NAMRU. Stool specimens were brought daily from the neighboring wards and

stained using the Merthiolate Iodine Formalin Concentration (MIFC) technique. This is a staining method developed at NAMRU-3 and now in universal use. I was able to identify a wide variety of endemic helminths and protozoa (in excess of 20 different organisms). In addition, I observed techniques being used for the production of the various stages of the schistosomal life cycle. An extensive snail colony is used to harvest cercariae from miracidium-infected snails. Researchers inject cercariae, the stage infectious to man, into hamsters to produce adult worms and subsequent eggs. The eggs are then harvested for use in the Immunology Department.

Egyptian land irrigation practices perpetuate schistosomiasis. The cercariae, after release from the snail, await the unsuspecting person who wades into infested waters. Although many of the people are aware of the danger of wading, they still find it necessary to do so in order to wash dishes and clothes, irrigate their crops, carry on with their daily subsistence routines, and to perform the mandatory ritual ablutions of the Muslim faith.

The schistosomiasis wards are the responsibility of Dr. Zoheir Farid, Head of the Clinical Investigation Department. I made biweekly rounds with him on wards where the patients are predominantly teenage male farmers from villages located throughout the Nile Valley. In addition to the massive hepatosplenomegaly and ascites resulting from *S. mansoni* infection, other associated conditions include parasite induced suppression of cell-mediated immunity, increased hepatitis B markers in the serum, chronic *Salmonella paratyphi A* infection, and rectosigmoid pseudopolyposis. These patients participate in the search for effective new therapeutic regimens, as well as clinical research aimed at better definition of these schistosomal associated complications.

Most patients initially come after

receiving word-of-mouth information from friends and relatives that NAMRU can help those with bloody urine, big bellies, or neurological problems. Patients with *S. mansoni*, *S. haematobium*, and various forms of meningitis manage to find their way to our facility. Visits to the field often produce new patients. We spent one day in the field assisting in canvassing patients for the wards. Villagers have come to know and trust NAMRU and often we were surrounded by friendly crowds as our van moved up the road. Once at NAMRU, a team of Egyptian physicians assumes responsibility for their day to day care.

Because NAMRU maintains effective public health measures necessary to eliminate infectious agents, its facilities are ideal for studying illness and attempting to develop new forms of therapy. One can study the etiological organism in the laboratory, often conducting experiments in a controlled environment. Clinical correlation is possible with the large patient population on the wards. By venturing out into the field, one can appreciate the illness from an ecological standpoint and as it exists in the patients' cultural milieu. At no time during my medical studies had the "entire picture" of an illness been presented to me in such a lucid and relevant manner.

Parasitology is but one area of NAMRU-3's research. Another exciting focus of exploration deals with exotic viruses found on the African continent. Rift Valley Fever, Lassa Fever, Marburg, and Ebola viruses are among the agents scrutinized by the Virology Department. Presently, the study of the viral, clinical, entomological, ecological, and epidemiological aspects of Rift Valley Fever, an acute and sometimes fatal hemorrhagic illness, occupies a sizeable portion of this department's time and energy. In cooperation with the Medical Zoology Department and the Veterinary Medicine Department, virologists are attempting to



*Mother and child in meningitis ward of the Abbassia Fever Hospital. The child is blind and deaf as a result of pneumococcal meningitis. Mothers live with the children at the hospital during treatment.*

characterize the viral agent responsible for this illness. In addition to learning much about these unusual viral agents, I learned to set up and run antibody titres to Rift using hemagglutination inhibition, complement fixation, and plaque reduction assays. I was introduced to other general virology techniques that helped me appreciate the intricacies behind the investigation of arboviruses, viral epidemics, and the diagnosis of viral illness.

Brief visits of several days each to the Immunology and Bacteriology Departments complemented what I had learned in virology. The Immunology Department conducts research on the host immunological response to schistosomal infection. Apparently, such infection suppresses cell-mediated immunity in the host, causing an increased incidence of hepatitis B markers, chronic active hepatitis, and cirrhosis. This department is attempting to clarify this relationship.



*Ascites resulting from schistosomiasis.*



I learned the finer points of laboratory immunological techniques. Because immunology promises to open new vistas in the medical field, I feel that this time was well spent. I also learned to perform enzyme-linked immunosorbent assays (ELISA), a technique highly touted by several of NAMRU's scientists as an extremely valuable laboratory aid of which we will see much use in the near future.

I observed the vast potential of the ELISA technique in the Bacteriology Department. Using brucella, a common pathogen found in Egypt, NAMRU scientists are perfecting an ELISA method that can rapidly identify different bacterial antigens. Such an assay will have great diagnostic value in the field and aboard ship where the installation of elaborate microbiological equipment is either impractical or impossible. They envision that in the not too distant future such assays in hospital laboratories will greatly facilitate the diagnosis of infectious diseases.

Working closely with all departments at NAMRU is the Veterinary Medicine Department. One staff member, a comparative veterinary pathologist, currently conducts research on arbovirus vectors as well as performing animal necropsies to better understand the pathogenesis of various infectious diseases. Another military veterinarian manages the largest laboratory animal facility in the Middle East. With an average daily census of about 10,000 animals, he cares for the mice, hamsters, rabbits, baboons, and other assorted animals vital to the research conducted at NAMRU.

Scientists in the Veterinary Medicine Department are also working on several research projects. Rabies virus is endemic to Egypt, providing an excellent opportunity to study this illness. Using white mice, they are investigating the effect that various antibody titres in human serum have on the course of rabies infection following human diploid vaccine and duck embryo rabies vaccine immuno-



*Child with multiple vitamin deficiency and schistosomiasis. Rash on cheeks and nose is a result of niacin deficiency. Note cheilosis (cracked lips).*

prophylaxis. Such research is made possible by the large number of rabies-vaccinated individuals in Cairo. Another of their projects involves using "homemade" rabbit antibodies to Sindbis, Rift Valley Fever, and West Nile Fever viruses for the purpose of better elucidating the arbovirus vectors involved in the epidemiology of these illnesses.

In addition to providing dental care to the personnel at NAMRU, research is also being conducted by members of the Dental Corps staff. Plans include evaluation of dental diseases prevalent in the Middle East. Currently, Dental Corps scientists are also setting up cell fusion experiments. The fusion of mouse myeloma cells with mouse spleen lymphocytes will make it possible to mass produce Rift virus antibodies essential for those experiments being conducted here.

In short, I found that the NAMRU scientists truly complement one another with respect to both their projects and their fields of expertise.

#### **Clinical Experience**

My clinical experience at NAMRU was diverse and quite interesting. In addition to the time spent on the schisto ward, I attended weekly

rounds at neighboring Abbassia Fever Hospital, a 3,000-bed unit with an average daily census of approximately 1,500. Meningitis caused by *Neisseria meningitidis*, Group A, tuberculosis, and *Streptococcus pneumoniae* were common; each week I saw at least 50 such cases. The most perplexing fever cases were presented on a weekly basis at FUO (fevers of undetermined origin) rounds.

I gained additional clinical experience by visiting a local university hospital where I had the opportunity to attend cardiology rounds. In one hour, I heard more types of heart murmurs than in six weeks on a cardiology service of a university hospital at home. Rheumatic heart disease is prevalent, but I also saw patients of all ages with disorders such as aortic coarctation, ventricular septal defects, papillary muscle degeneration, aortic insufficiency, mitral stenosis, and schistosomal cor pulmonale, to list but a few.

In addition to cardiology rounds, I also spent time at the cardiac catheterization conference. The degree of technology and the sophistication of the cardiac service surprised me in light of the lack of wealth of the populace and the much greater need for public health standards here.

#### **The Community**

This story would not be complete without a brief description of the non-medical aspects of my stay. The comfortable BOQ in which I stayed is approximately a 10-minute drive from NAMRU. A six-apartment dwelling houses unaccompanied members of the NAMRU staff and visitors such as myself. When I was there, two additional visitors were being trained, both infectious disease specialists from the Army and Air Force. There was a daily mess at the BOQ for which our Egyptian cook prepared interesting and tasty dishes.

The official American community in Cairo comprises some 250 families,



*An Egyptian health worker sprays insecticide on canals in an attempt to kill the snails that cause bilharzia. A cow-driven water wheel operates in the background.*

and in a city of 10 million, this small number could easily be eclipsed. However, this has not happened. The U.S. population, composed of foreign service personnel, the NAMRU military personnel, and the Embassy Marine Detachment, form a close-knit community. The Cairo American College, a private school with grades kindergarten through 12, provides an education that rivals that of the finest schools in the United States. Many scientists participate in civic activities. One weekend, NAMRU staff members led a group of Cub Scouts on an overnight trip to the desert near the Pyramids and Sphinx. Families interact frequently and civic and church groups abound within the American community.

The Egyptians are a very friendly people and welcome our presence. Their hospitality is legendary; to be invited into an Egyptian home for an evening meal is a real treat. (I even

had the rare privilege of attending a Coptic wedding.) A visit to the ancient monuments such as the Pyramids at Giza, the Sphinx, Luxor, and the Valley of the Kings helps to impress upon the traveler the grandeur and splendor of this enduring land.

My experience at NAMRU-3 was a stimulating and worthwhile one and I left with many favorable impressions. Unlike many disappointing encounters with university research professors and clinicians who always seemed too busy to take time with students, NAMRU scientists helped make my stay as educational and enjoyable as possible. In a short time, I was able to accomplish far more than I could have anticipated before my arrival. The new skills I learned and knowledge I acquired cannot help but make me a better clinician and one who will be better prepared to serve during my Navy career.

This short tour on the Nile gave me a better appreciation for the value of basic science and clinical research, especially in an infectious disease setting. I saw how research funded for military requirements benefits medical science as a whole. As Dr. Dempsey pointed out, a tour at NAMRU-3 "is an exceptional opportunity to study classical diseases with modern techniques."

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Note that the program described is limited to three trainees at one time. When this article was written, vacancies were filled through January 1982. Funding and approval must also be provided by the applicant's assigned activity. For more information on the infectious disease program, write: CAPT John J. Dempsey, MC, USN, NAMRU-3, FPO New York 09527. □

# Vertical Extrusion of Endodontically Treated Teeth

CAPT Donald D. Antrim, DC, USN

The military dentist's patient population is composed of active young adults whose jobs in the service are sometimes hazardous. As a result, the military dentist is often called upon to render emergency treatment of traumatic orofacial injuries, including treatment of fractured teeth.

Trauma to the orofacial region often results in observable chips and fractures to the coronal portions of teeth. Further damage to the underlying root structure must be evaluated radiographically. Horizontal root fractures are occasionally observed. They can be found in a cervical, midroot, or apical location. This report is concerned primarily with treatment of horizontal or oblique fractures that occur near the cervical one-third of the root of the tooth. Pathologic perforations and internal resorption in the cervical one-third of the root will also be discussed.

The cervical root fracture is common and treatment depends mainly on the amount of tooth structure remaining. If sufficient structure remains so that the crown can be prepared and restored, the treatment is uncomplicated. Unfortunately, this is not usually the case; the fracture may extend to or below the epithelial attachment or the osseous level of the alveolar process. All too frequently, this situation has been treated by extracting the remaining root portion.

In 1973, Heithersay<sup>(1)</sup> described the extrusion of teeth in a vertical

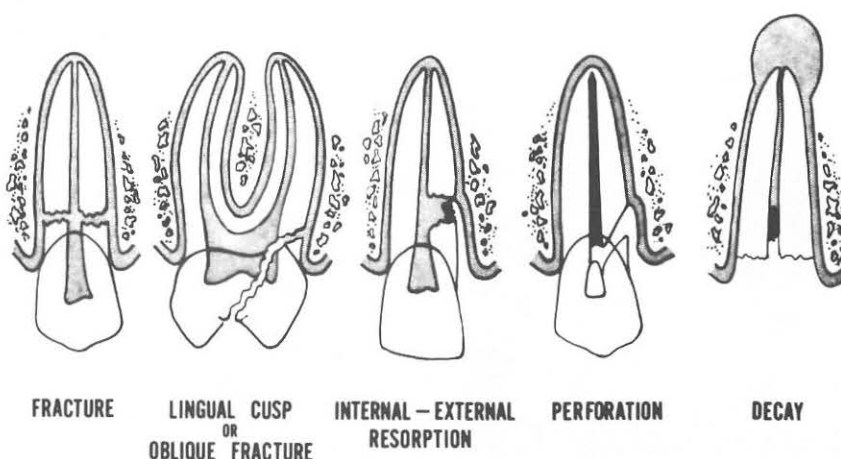


FIGURE 1. Indications for use of root extrusion technique. (5) Copyright by the American Dental Association. Reprinted by permission.

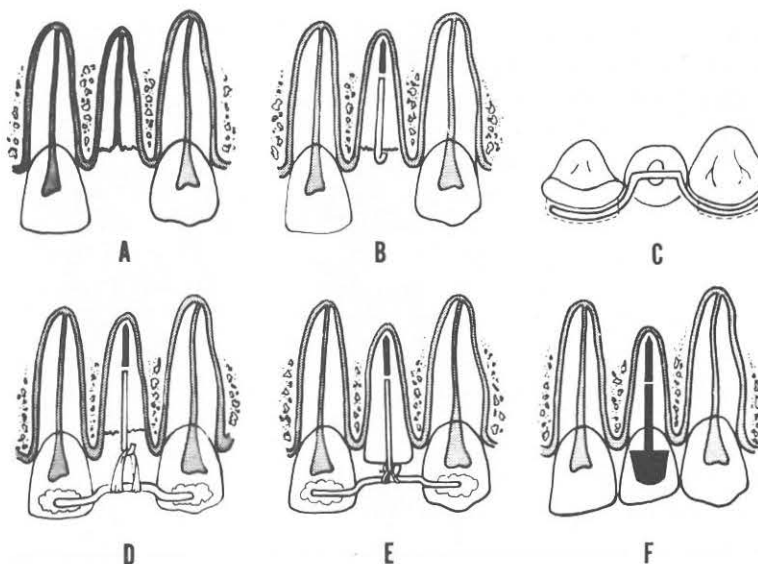


FIGURE 2. Sequential procedures involved in root extrusion. A: initial fracture; B: endodontic therapy completed and post cemented; C: arch wire attached with acid-etch composite resin (note that wire is directly incisal to root space); D: appliance activated with orthodontic elastic band; E: extrusion complete and tooth stabilized with fine ligature wire; F: permanent restoration. (5) Copyright by the American Dental Association. Reprinted by permission.

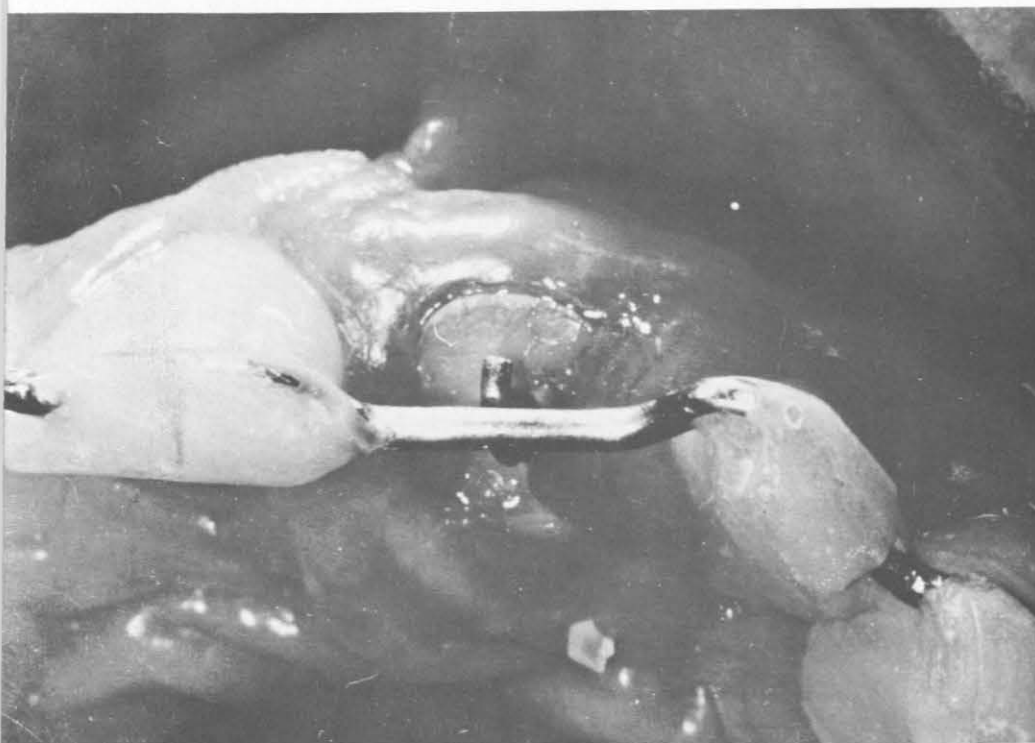
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direction to facilitate the treatment of transverse fractures located in the coronal one-third of the root. The extrusion was accomplished by vertical orthodontic movement that raised the defect above the alveolar bone and gingiva, thus allowing proper access to the root for restoration. Heithersay also speculated that this approach could be used in treating teeth with perforations, caries, or resorptive defects in the cervical third of the root. Since then, the technique has been adapted to treat a variety of cases throughout the dental arch. Different methods and indications have been discussed in the work of Wolfson and Seiden,(2) Mehlman and Prescott,(3) Simon et al.,(4,5) and Ingber.(6) Lythgoe et al.,(7)

*FIGURE 3. Fractured central incisor with gutta-percha root canal filling*



*FIGURE 4. Arch wire contoured and attached*

recently reviewed current extrusion techniques and presented modifications and previously unreported approaches that included procedures for treatment of multirooted teeth.

### **Rationale**

Several factors complicate the treatment of teeth with physically or pathologically induced defects in the cervical third of the root. Periodontal surgery, usually with osseous recontouring, is often necessary to expose the defect for proper placement of subsequent restorations. Many times the result is both esthetically and periodontally unsatisfactory. Vertical root extrusion is indicated when the pathologic or traumatic defect is so subgingival or subosseous that routine restorative procedures are precluded. This condition occurs frequently with horizontal or oblique root fractures that extend below the alveolar crest.(2-7) The same situation is evident in teeth decayed below the gingiva.(5)

Perforations, from either iatrogenic or resorptive causes, are also excellent candidates for vertical extrusion.(3,5,7) In the past, these perforative defects have been treated by attempts to seal the perforations from within the root canal with gutta-percha or amalgam, or externally by surgical placement of a suitable restorative material, usually amalgam. Restorations placed during surgical intervention to repair these defects may result in a self-sustaining periodontal problem if a communication remains between the area of repair and the gingival sulcus. However, a stable periodontal state can be achieved if the defect can be elevated above the gingival margin.

Indications for vertical extrusion are shown in Figure 1. In these situations, the extrusion technique will bring the apical root segment or perforative defect into a favorable rela-

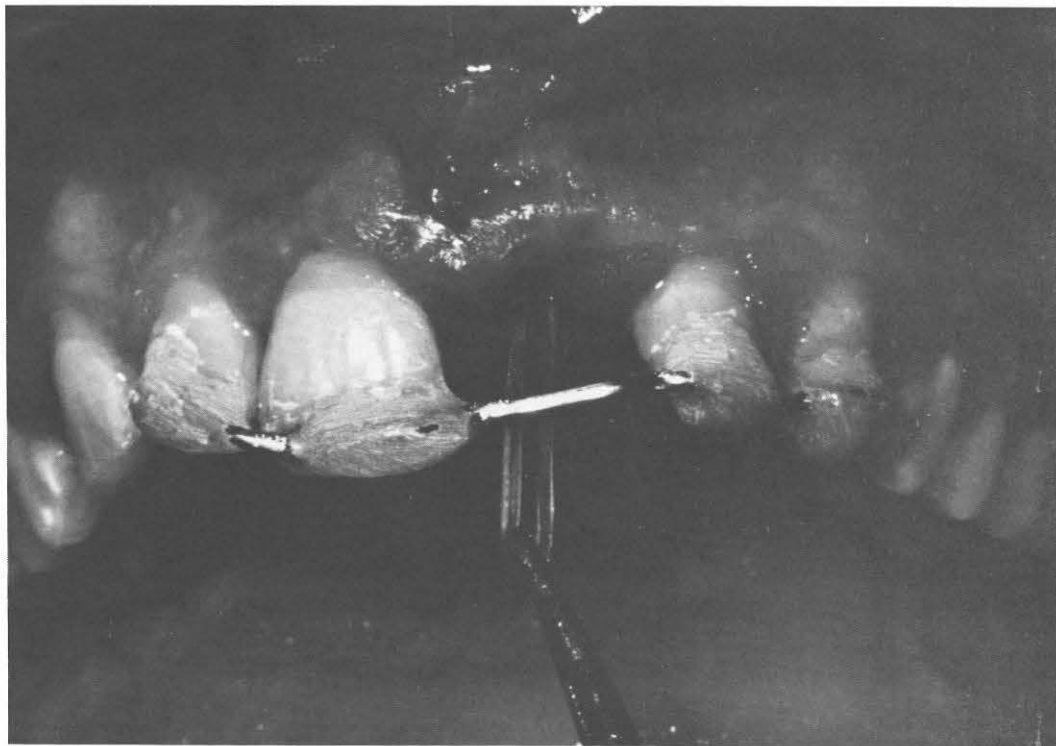
tionship with gingival tissues so that a restoration can successfully be constructed. In evaluating teeth for vertical extrusion, the most important consideration is to maintain a favorable crown-root ratio, i.e., one that can support the required restoration. In addition, periodontal status, oral hygiene, the patient's acceptance of time involved, and the benefits to be achieved in avoiding a fixed partial denture should be considered.<sup>(5)</sup>

#### **Technique for Teeth Without Clinical Crowns**

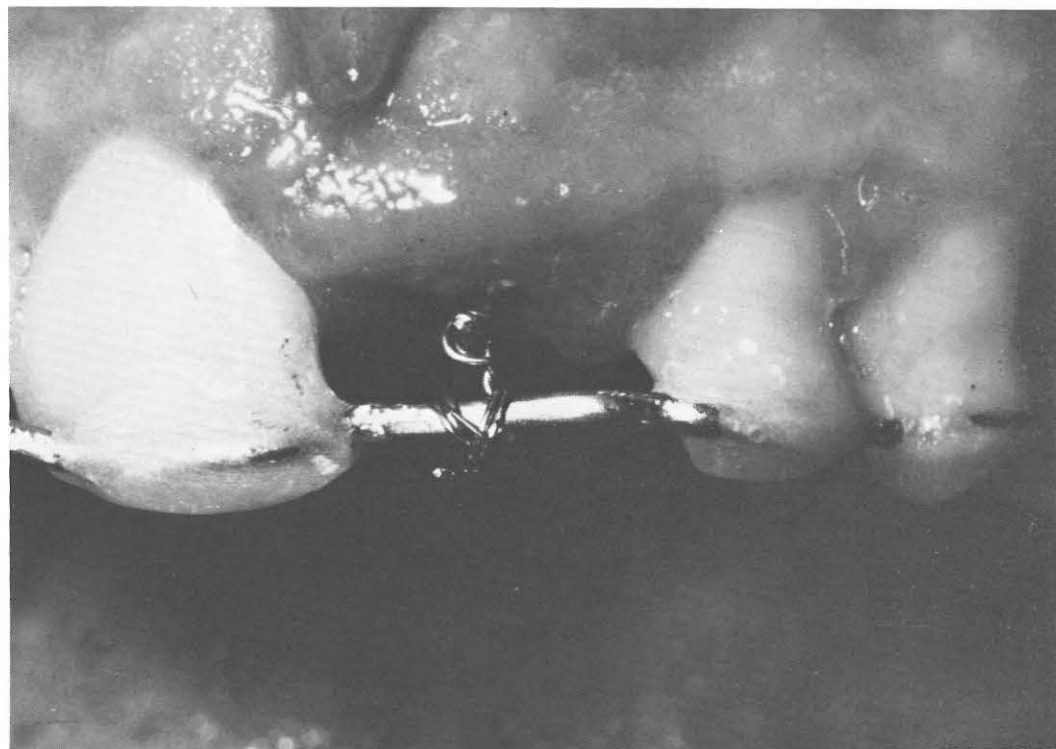
The procedure is not a difficult one and is well within the capabilities of general dentists. Basic principles of endodontics and orthodontics should be followed and each case should be evaluated in terms of its own set of circumstances. Teeth with clinical crowns will require slightly different techniques than those without crowns. The basic clinical approach for teeth without clinical crowns, outlined in the following steps, is represented in Figure 2.

- **Root Canal Therapy.** Standard root canal therapy should be carried out and the canal filled with gutta-percha (Figure 3). If the crown is loose, it should be removed. Teeth without clinical crowns might present isolation problems that tax the ingenuity of the operator. Clamping through the gingiva over the alveolar crest, stretching the rubber dam over the adjacent teeth, or putting a metal tube into the canal are possible techniques for isolation.

- **Fabrication and Cementation of a Hooked Wire Post.** The canal should be prepared to receive a wire post. The preparation should extend approximately one-half to two-thirds the length of the remaining root, and the post should be made from round 16- to 18-gauge orthodontic wire. The wire should fit loosely in the canal



*FIGURE 5. Placing elastic band to activate the appliance*



*FIGURE 6. Extruded root stabilized by fine ligature wire*



FIGURE 7. Eight-week postoperative radiograph of extruded root. Arrows point to bone filled in at apex



FIGURE 8. Internal resorption, coronal one-third, right lateral incisor, but crown intact

and have a slight taper at the apical end. The occlusal end is bent to form a small hook, and the wire may be notched along its length to improve retention. Cement the hooked wire in place with a zinc oxide-eugenol cement. This should be strong enough to keep the wire in place but not so strong as to prevent later removal. Put the wire into the root with the hook as close to the occlusal surface of the root as possible. This position provides adequate room between the hook and the labial arch wire for the vertical movement of the root segment.

• **Fabrication and Attachment of an Arch Wire** (Figure 4). The wire should be of sufficient size, such as a No. 0.036 round orthodontic wire to

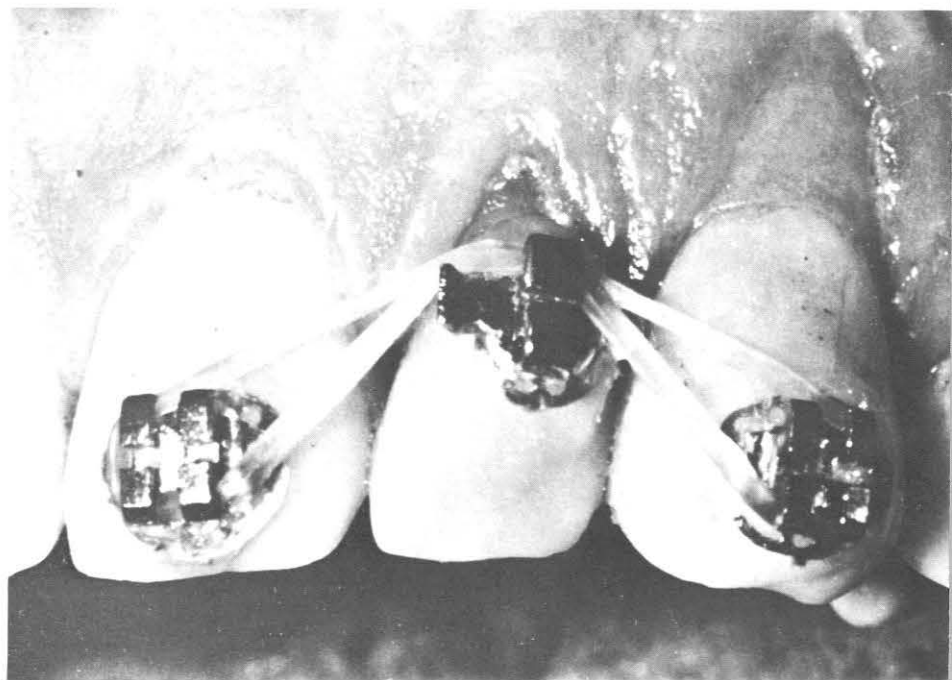


FIGURE 9. Extrusion of tooth with intact crown



resist bending when extrusion forces are applied. It is much easier to contour the arch wire on a stone cast than to attempt to do so in the mouth. The arch wire should be formed so that the labial surfaces of each abutment tooth are in contact with the wire. It is important to bend the wire so that elastic bands attached from it will extrude the root segment straight out of the socket without undue buccal or lingual displacement. The arch wire should be placed as closely as possible to the incisal edges of the abutment teeth to allow adequate room between the hook and the arch wire for the root to move vertically. Once the arch wire has been properly contoured, it should be attached to the abutment teeth with an acid-etch composite resin. The wire ends and excess composite material should be trimmed and smoothed with appropriate instruments and materials to prevent irritation to soft tissues.

• **Activation of the Appliance** (Figure 5). Activation is accomplished by placing a light to medium orthodontics elastic band such as a 3D ( $\frac{1}{4}$  inch) 3½ oz from the hook up over the arch wire and back to the hook. The main orthodontic concern is not to exceed a force of 25 to 30 g, to avoid external resorption.<sup>(8)</sup> As the root moves incisally, tension is maintained by the use of smaller elastic bands or by wrapping the elastic band another turn around the arch wire.

The extrusion is usually accomplished within two weeks but can take longer, depending on root morphology, how far the tooth needs to be moved, and the degree of tension in the elastic band. The patient should be monitored every two or three days to check the progress of the extrusion. The tooth will usually become mobile within one week and the rate of extrusion will then depend on the degree of force applied by the elastic band. Extrusion will cease when the hook touches the arch wire. If additional length is required, it may be necessary to alter the hook or to put it

farther into the root. The patient should experience little discomfort during the extrusion other than the tooth soreness typical of orthodontic movement.

• **Stabilization of the Extruded Root Segment** (Figure 6). Once the root has been moved the desired distance, it should be stabilized and held in place for 8 to 12 weeks to allow the periodontal ligament to reorganize and bony healing to take place (Figure 7). Stabilization is accomplished by removing the elastic band and securing the hooked wire post to the arch wire with a fine ligature wire. New bone should fill in the area previously occupied by the end of the root. If the tooth is not stabilized long enough, the root may spontaneously intrude back into the socket. The intrusion phenomenon can be beneficial if the tooth is overextruded. Simply remove the elastic band and allow the tooth to intrude the desired distance.

• **Placement of the Permanent Restoration.** After an appropriate stabilization period, the apparatus used to stabilize the extruded root is removed. The extruded root segment can now be prepared to receive a crown because there is sufficient tooth structure to allow all margins to end on solid tooth structure.

#### **Technique for Teeth With Intact Clinical Crowns**

For cases in which all or part of the crown is still intact, i.e., in cases of perforation, internal resorption, or oblique fractures of cusps, the crown can be left attached to the root (Figure 8). This is desirable for esthetic reasons. Brackets can be attached to metal orthodontic bands fitted to the crowns of the involved tooth and the abutment teeth, or the brackets can be bonded directly to the crowns (Figures 9 and 10). This approach requires adjacent teeth suitable for use as abutments from which to extrude the fractured tooth. By means of the acid-etch composite system, brackets are attached to the



FIGURE 10. Radiographs of extruded tooth with intact crown

facial surfaces of both abutment teeth as close to the incisal edges as possible. A bracket is placed near the gingival margin of the tooth to be extruded. The relative placement of the brackets will result in forces that will move the tooth incisally upon activation.

Activation of the appliance is achieved by placing the elastic band around the abutment brackets and underneath the bracket on the involved tooth (Figure 9). The incisal and lingual occlusal contact must be adjusted frequently during extrusion to allow for the coronal migration of the tooth. As the tooth moves incisally, apical repositioning of the bracket on the extruding tooth may become necessary to maintain proper tension. When extrusion is complete, the

proximal areas may be acid-etched and bridged with a composite resin for stabilization.

### Problems

Simon (4) emphasizes the following potential problems or complications:

- The tooth segment may be extruded too rapidly. This may result in extreme mobility, necessitating longer stabilization. Rapid extrusion may also cause marked gingival inflammation that may progress to a periodontal defect.
- The tooth segment may be extruded too far, which may result in loss of the tooth. This can be prevented by careful analysis of necessary length requirements and proper construction and positioning of the arch wire.
- It may be difficult to remove the temporary hook wire from the segment. Neither composite materials nor hard cements should be used to secure the wire in place. If removal is not possible, the wire may be incorporated into the permanent restoration.
- The stabilization period may not be long enough. The tooth segment

must be held in place long enough for the periodontal ligament and the alveolar bone to heal. This usually takes 8 to 12 weeks. If it is not stabilized long enough, the segment will reintrude and the entire procedure will have to be repeated.

- The case selection may be improper. Selection of roots that do not have enough remaining structure to maintain a minimal crown-root ratio of 1:1 must be avoided.

### Conclusions

A technique has been discussed that will enable military dentists to retain teeth that traditionally have been extracted. Clinical situations resulting from physical or pathologic defects in the cervical one-third of the root can be corrected by vertical movement of the root segment into a position more favorable for restorative dentistry. This approach can be considered conservative because it eliminates possible extraction, osseous correction, or development of periodontal defects. The restoration of a single tooth is esthetically and hygienically superior to a multiunit fixed partial denture, and retention of the root eliminates postextraction

alveolar resorption. Careful use of the vertical extrusion technique on indicated teeth should become a routine procedure in the general practice of dentistry.

### References

1. Heithersay GS: Combined endodontic-orthodontic treatment of transverse root fractures in the region of the alveolar crest. *Oral Surg* 36:404-415, 1973.
2. Wolfson EM, Seiden L: Combined endodontic-orthodontic treatment of subgingivally fractured teeth. *J Can Dent Assoc* 41:621-624, 1975.
3. Mehlman ES, Prescott GO: Endodontic-orthodontic treatment of transverse root fractures in the region of the alveolar crest. *RI Dent J* 8:8-13, 1975.
4. Simon JHS: Vertical movement of endodontically treated roots, in Cohen S, Burns RC (eds): *Pathways of the Pulp*. St. Louis, CV Mosby Co, 1976, p 521.
5. Simon JHS, Kelly WH, Gordon DG, Ericksen GW: Extrusion of endodontically treated teeth. *J Am Dent Assoc* 97:17-23, 1978.
6. Ingber JS: Forced eruption: II. A method of treating nonrestorable teeth—periodontal and restorative considerations. *J Periodontol* 47:203, 1976.
7. Lythgoe JR, Torabinejad M, Simon JHS: Extrusion techniques for the general dentist. *Gen Dent* 28:42-48, 1980.
8. Reitan K: Clinical and histologic observations on tooth movement during and after orthodontic treatment. *Orthodont* 53:721-745, 1967. □

## Dental Tech Runs for Navy Relief

While most Navy and Marine Corps personnel were debating with themselves over whether and how much to donate to the fund raising drive held on behalf of the Navy Relief Society recently, DT2 Larry Curtis, of NRDC San Diego, CA, was dreaming of how large a contribution he could generate on behalf of that benevolent organization.

Fulfilling a personal dream, DT2 Curtis successfully completed a 115-mile run—the equivalent of over four back-to-back marathons—from his duty station at the NRDC Headquarters Branch Clinic to the Navy Recruiting Office in Garden Grove, CA, where he first enlisted. The run, which he undertook by himself, netted over \$650.00 (despite a lack of publicity) from backers who pledged amounts ranging from \$.03 to

\$.22 per mile.

Asked why he put forth this challenging and occasionally painful effort, a tired Curtis reflected on his four and a half-day solo test of endurance by saying, "I know lots of people who have used Navy Relief, and it's a pretty good deal. This was a way for me to do my thing and also help a worthwhile cause."

The blisters had not yet subsided before DT2 Curtis began formulating plans for a bigger and better run for Navy Relief next year. He noted, excitedly, "several people have indicated that they would like to join me in the run next year, which I welcome, because it got pretty lonely out there! With more people involved and better advance publicity, we should be able to raise a lot more money!"



# Pseudofolliculitis Barbae

CAPT Wilmot S. Draper, MC, USN

Pseudofolliculitis barbae (PFB) is a condition of the beard area of adult males who shave and have tightly coiled or curved facial hair. PFB is also known as pseudofolliculitis of the beard, pili incarnati (referring to its ingrown hairs), "shaving bumps," and chronic sycosis barbae, this last name being a misnomer. The condition is predominantly one of the black race, in which it is quite common, and it can also be seen in men of other races who have the prerequisite curly whiskers. PFB is readily eliminated by simply letting the beard grow, but for many individuals, this is an unacceptable solution.\* Though the wearing of beards has gained some recent acceptance, social and job pressures remain that make many individuals desire or need to present a clean-shaven appearance. The requirement or desire for the clean-shaven look is often understood rather than regulated, though in most

of the military forces of the world, a beardless appearance is required, and exceptions, if any, are often temporary to give time to let the individual's beard grow out and to let the lesions resolve enough so that a program of control can be instituted to give a shaved appearance in the future. Further, individuals, military or civilian, in jobs requiring the occasional or frequent wearing of tightly fitting facial masks often find a smooth nonwhiskered face essential.

## Definition

PFB is a condition characterized by the presence of papules and pustules of the bearded area resulting from reentry penetration of the skin by the external pointed tip of a growing whisker, or, less commonly, by a piercing of the epithelium of the distal end of a hair follicle just beneath the skin surface.

## Clinical Appearance

The characteristic lesions are erythematous papules, keloidal papules, pustules, and occasionally also oozing and crusting. The sites of involvement are usually over and beneath the mandible, though any area on which beard hairs grow may become involved (Figure 1 above). The beard hairs in the affected areas are often disoriented, that is without any specific direction of hair growth,

and thus emerge in all directions and with a tendency to run generally parallel and close to the skin surface.

## Etiology

As the shaved curved whiskers emerge from the skin, and often almost parallel to the skin, they turn in the direction of the epidermis and form an arc with reentry penetration into the skin as if to complete a full circle (Figure 2). Less frequently, the sharp tips penetrate the epithelium of the distal portion of the follicle just beneath the surface and arc downward without ever becoming externalized. When the whisker is externalized, the external portion from exit to reentry is usually short, averaging two millimeters in length. As the ingrowing tip proceeds into the dermis, epithelial cells form about the invading shaft and form a so-called pseudofollicle. If these hairs are allowed to grow, the skin is penetrated up to two or three mm and then resistance increases and penetration ceases. Only short stiff hairs can penetrate the epidermis, longer hairs, such as on the scalp, just bend. An inflammatory reaction and neutrophilic foreign body response about the ingrowing hair produces a papule, and secondary infection a pustule. Microscopic examination and bacterial culture reveals resident cocci to be the organisms involved. Pathogenic *Staphylococcus aureus*

Dr. Draper is Chief, Dermatology Service, NRMCC Charleston, SC 29408. From *Biology and Disease of the Hair*, eds. Tatsuji Kobori, William Montagna, Kiyoshi Toda, Yasumasa Ishibashi, Yoshiaki Hori, Fujio Morikawa, 1976. Reprinted with permission of the University of Tokyo Press, Tokyo, Japan.

\*By direction of CNO, as of 10 July 1981, beards are no longer permitted for persons in high visibility positions of leadership, such as commanding officers and executive officers. Beards are also deemed inappropriate for medical personnel in patient-contact areas.



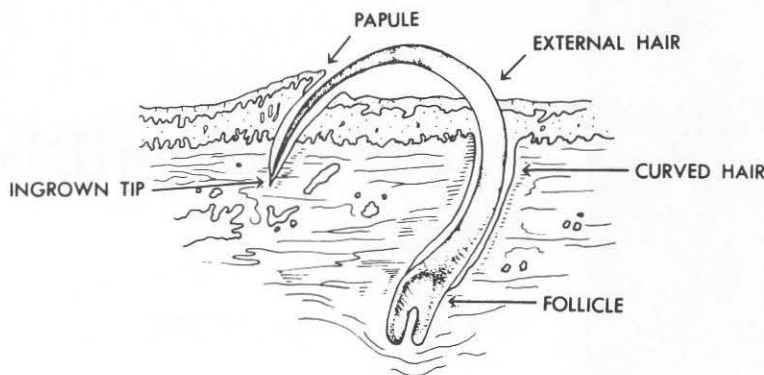


FIGURE 2. Schematic representation of the ingrown hair

does not appear to play a role in the uncomplicated course of PFB, and thus a further reason for terming this a pseudofolliculitis rather than a true folliculitis.

The exact incidence of the condition is unknown but it is quite common in black men, probably affecting the majority of such men when mild forms are considered.

#### Natural History

The age of onset is, of course, dependent upon when the beard becomes thick enough to cause the problem, and that is usually in the third decade of life. If nothing is done to prevent its continuance, the condition persists for many years, often for life. Continued shaving when the condition is present cannot only prolong its course, but may also lead to further inflammation and/or infec-

tion, discomfort, and sometimes permanent scarring.

#### Treatment

In all cases a cure can be obtained by not shaving. As the ingrown hair grows, it exerts a tension which by spring action pulls the ingrown hair free (Figure 3). However, after a few days to one week of no shaving, the condition may appear more severe as all the short spear-like whiskers are available to ingrow. After 15 to 90 days of no shaving, the length of time being dependent on the severity of the PFB, a clinical cure is evident in all but the most severe cases with residual scarring. If a beard is desired and acceptable, shaving can be permanently discontinued and the condition permanently cured. However, if a clean-shaven appearance is the goal, various methods to maintain

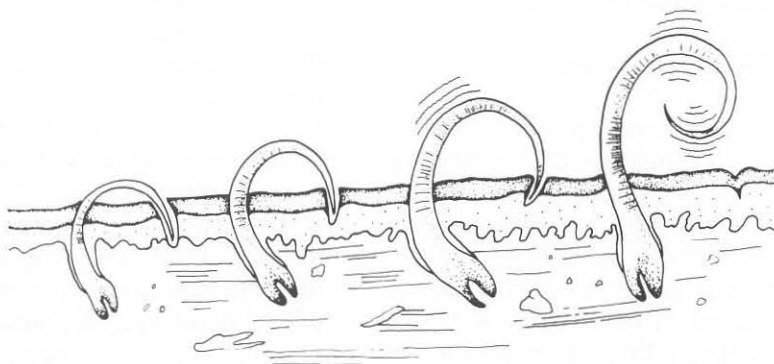


FIGURE 3. Schematic representation of the ingrown hair springing free as the hair continues to grow.

that appearance can then be instituted (Figure 4).

First, a really close shave should be avoided because a sharply cut spear-like short whisker can more easily penetrate the skin. To be especially avoided are those razors with a double blade in which one blade cuts most of the whisker and another follows to get a really close shave. One might think that if shaving were close and complete that there would be no hairs available for reentry penetration. However, such a clean shave is difficult to accomplish when the emerging hairs hug the surface, and if such a shave is to be accomplished, it involves placing the skin under tension when shaving. Then, when the skin tension or stretching is released, the tip of the cut and still growing hair lies just beneath the skin surface and soon penetrates the follicular wall. The skin-stretching had caused the whisker to extend further out of the follicle allowing it to be cut at a lower level.

In addition to not stretching the skin, a less close shave also results from shaving with the direction of hair growth rather than against that direction (Figure 5). Shaving against the grain of hair growth causes the whisker to straighten up as it is being cut and then the sharp pointed end snaps back to become a spear ready to reenter the skin. Shaving with the grain allows the whiskers to grow out of, rather than into, the skin.

Another way to accomplish a less close shave is simply to shave less frequently. A little stubble can usually be tolerated and blacks usually have a lesser and more slowly growing beard, and the stubble is less noticeable on their dark skin. Shaving every third day is often satisfactory.

In addition to the method and frequency of shaving, the type of razor used can also influence the adequacy and closeness of the shave. Use of electric razors often runs the risk of being unable to get the tightly-curved skin-hugging whiskers to enter the

teeth of such razors or may result in pulling of whiskers. Pressing the electric razor firmly against the beard to get the whiskers into the teeth may lead to abrasions, especially if papules of PFB are present.

An adjustable razor has been found to be the best shaving apparatus for men with PFB because a low setting bends the blade so that a satisfactory but not overly close shave is obtained. A high setting, on the other hand, allows the razor to scrape, abrade, and often cut the skin and gives too close a shave. Thus a low setting on an adjustable razor helps accomplish the desired level of shaving with a minimum of irritation (Figure 6).

The second goal in attempting to maintain a clean-shaven appearance in a man with PFB is that of minimizing irritation. Simply avoiding a close shave is usually not enough to keep PFB properly controlled. Papules containing ingrown hairs can be irritated or otherwise traumatized during shaving regardless of the method used. These hairs should be dislodged by placing a straight pin or toothpick under the external loop and then gently lifting out the ingrown tip. Plucking ingrown hairs may lead to follicular damage or broken off hairs which can then pierce the follicular wall. Also, when plucking is attempted, it is often difficult or impossible to know whether the end grasped and pulled is the ingrown end of the loop or the end growing from a follicle. Vigorous regular rubbing of the face with a rough towel is often enough to dislodge hairs just starting to ingrow. Likewise, regular brushing of the stubble often dislodges penetrating hairs and regular brushing in the same direction is often essential to train disoriented whiskers to grow in one direction so as to permit shaving with the grain.

Irritation can further be minimized by thoroughly softening the beard with water prior to shaving. This can be done by shaving right after taking

### **Pseudofolliculitis Barbae (PFB)**

Who: Adult males who shave and have curved whiskers  
 What: Papules and pustules  
 Where: Bearded area  
 Why: Pointed end of cut whiskers penetrates skin or distal follicle  
 Problem: Need or desire for clean-shaven appearance

#### **Solution of Problem**

1. All Cases
  - a. Don't shave
    1. Until heals enough to try a control
    2. Forever . . . . . Curative . . . . .
2. Control of Mild to Moderate Cases
  - a. Avoid close shave
    1. Shave with grain of hair growth
    2. Don't stretch skin
    3. Infrequent shave
    4. Low setting adjustable razor
  - b. Minimize irritation
    1. Dislodge ingrowing hairs with
      - a. Toothpick or straight pin
      - b. Towel
      - c. Brush (also to train whiskers)
    2. Water soften beard
    3. Topical corticosteroid
  - c. Topical vitamin A acid (Retin-A)
3. Control of Moderate to Severe Cases
  - a. Get a blunt-ended whisker so it will not penetrate skin
    1. Chemical depilatory
      - a. Barium sulfide powder (Magic Shave)
        1. Mix
        2. Apply to 1/2 of beard
        3. Scrape off barium sulfide and whiskers
        4. Rinse
        5. Wash
        6. Rinse
        7. Do other 1/2 of beard
        8. Topical corticosteroid if burns
      - b. Calcium thioglycolate
        1. Application similar to barium sulfide, but takes longer
4. Severe Cases
  - a. Beard removal by electrolysis

*FIGURE 4. Outline of pseudofolliculitis barbae and its treatment.*

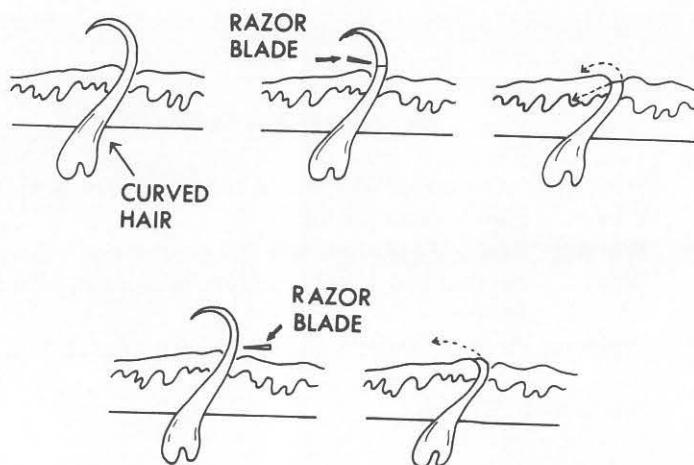


FIGURE 5. Shaving against the grain of hair growth achieves too close a shave (top line). Shaving should be with the grain of hair growth (bottom line).

a shower or after holding a warm, wet cloth on the bearded area for several minutes before shaving.

If irritation continues to be a problem, the use of a corticosteroid cream, solution, or ointment applied as an "after-shave" is often of benefit.

In addition to the avoidance of a close shave and the minimization of irritation, a third method of controlling mild to moderate PFB was recently reported by Kligman and Mills.<sup>(4)</sup> They tried the topical application of tretinoin, a vitamin A acid acne treatment marketed in the United States under the trade name Retin-A. The rationale for use was based on the ability of Retin-A to

harden the skin and reduce hyperkeratosis. The repeated nicking of the follicular epithelium by the sharp cut whiskers stimulates hyperkeratosis which can obstruct the follicular orifice and increase the chance of penetration. Retin-A was tried to see if alleviating hyperkeratosis and skin "toughening" would be of benefit. A 0.05 percent solution of Retin-A was applied daily to the bearded areas of 30 to 40 men with PFB and within eight weeks improvement was noted in all early cases and in mild to moderate cases of longer duration. Severe cases, however, showed little or no improvement. The subjects continued with their usual shaving practices during the Retin-A treatment.

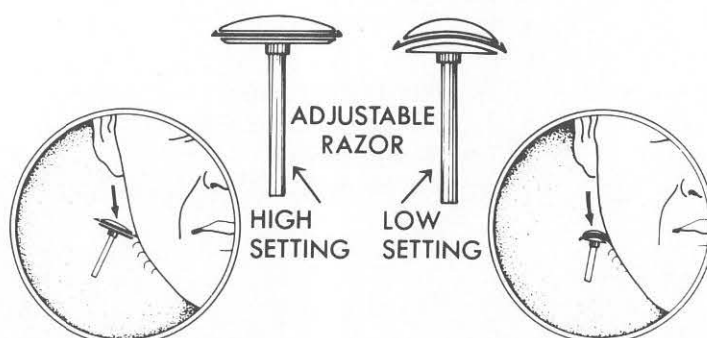


FIGURE 6. A low setting on an adjustable razor bends the blade and allows a not too close shave when shaving is with the grain of hair growth (right diagram).

This treatment is, of course, a control, not a cure, and though it could be decreased in many cases to twice weekly application to maintain adequate control, a complete discontinuance resulted in relapse of the PFB after about two weeks.

Though the methods just described offer satisfactory control in the mild to moderate cases of PFB, most of the more severe cases require that something be done to eliminate the sharp spear-like whiskers. That involves obtaining instead a blunt-ended whisker that will not penetrate the skin. This can be done with the use of a chemical depilatory. Such depilatories are also effective in milder cases but are generally not used in such cases for three reasons. First, the preparations require careful use to prevent irritation and often post-inflammatory hyperpigmentation. Many affected individuals feel they cannot use such preparations because of previous improper use with untoward results or after hearing of the results of such depilatories from friends or relatives who had used them improperly. Second, the use of a chemical depilatory is often inconvenient and time-consuming, and certainly more so than the simple techniques for control already outlined for milder cases. The use of a depilatory also can be difficult when traveling and without one's own facilities at home. A third reason for the less than complete acceptance of depilatories is a strong unpleasant sulfide odor of some of the more effective and less expensive preparations.

When a chemical depilatory is desired, or is found to be necessary, there is a choice of two basic types. The first is a barium sulfide powder and the second consists of calcium thioglycolate powders, creams, and lotions. They all act by chemically breaking down the keratin of the hair and leave a blunt-ended whisker which is neither too long nor too short (Figure 7). Six weeks of usage is usually required before the effective-



ness and proper usage of a particular depilatory in a particular individual can be judged. With few exceptions, any use of a razor blade or electric shaver during this period completely obviates the benefits of the depilatory, and this can be a problem, especially to the traveling man. Daily use usually causes irritation and there must be enough exposed stubble for the depilatory to have something to work on, thus usage once every two to five days is the usual regimen.

When a chemical depilatory is recommended, its proper use must be explained, or better yet, demonstrated, to the patient as misuse, or too frequent use, may result in considerable burning, itching, or other signs and symptoms of irritation.

The proper technique for using a barium sulfide power is as follows (Figure 4). First, the powder should be mixed with water until a watery paste is obtained. Second, the paste should be applied thinly to one-half, that is, one side of the beard. Third, three minutes after the start of the application, the paste and whiskers should be scraped off with a spatula or wooden tongue blade. The removal instrument should be kept moist and wiped clean by continually dipping it in rinse water and wiping with paper. The removal strokes should be short, rapid, and in the direction of hair growth. If some hairs remain, the process can be repeated after a 30- to 60-second wait. If all that cannot be accomplished in the three minutes from the start of the application, then only one-third or one-fourth of the beard should be done at a time, as leaving the depilatory on too long is one of the major causes of irritation. Sometimes, with practice, an individual can work rapidly enough so that the paste can be applied to the entire bearded area, rather than one-half, and removed within the three-minute time limit. Fourth, when the paste has been removed, that portion of the face should be rinsed rapidly and thoroughly two or three times

with soap washing between rinses. Barium sulfide is not easily rinsed off, thus these steps are important. Then the remaining portion or portions of the beard should be treated in the same manner and if, on completion, a whitish film or powder remains on the face, further washing and rinsing is in order. Finally, to alleviate any irritation that might occur, even with the most careful application, a cool wet washcloth may be applied for two to five minutes and followed by a thin application of a corticosteroid cream.

Calcium thioglycolate depilatories are applied against the direction of hair growth and removed in a similar manner, but depending on the preparation, should be left on for five to fifteen minutes, rather than three minutes, to be effective.

With a little practice, most individuals can use a depilatory fairly easily and the less time and expense involved makes barium sulfide the usually preferred agent, though the fairly fast-acting calcium thioglycolate powder is preferred by some because of its more pleasant odor. Most problems stem from incomplete re-

moval or too long an application; true allergic reactions are rare.

Topical and systemic antibiotics have been tried in the treatment of PFB with no exciting results. PFB will not be eliminated nor controlled without minimizing or preventing the ingrowing of beard hairs, and when that is accomplished, the disease is controlled and any concern about a bacterial factor becomes unnecessary.

In those instances when a full or trimmed beard is unacceptable, and a short but visible and palpable stubble acceptable, the beard can be clipped with a barber's hair clipper such as is available in home haircutting sets. The clipper should be held close to the face and slowly glided along the facial contours, against the grain of beard growth, and then repeated from another angle to get any missed hairs. Some of the hairs that closely hug the skin do, however, still have to be dislodged by methods already described. A similar result can be more painstakingly accomplished with scissors.

Finally, in those individuals who must appear clean-shaven and for whom nothing short of just not shaving will satisfactorily achieve that result, there is one last resort. That is the painstaking, difficult, time-consuming, and expensive task of the removal of each individual beard hair by electrolysis.

## References

1. Strauss JS, Kligman AM: Pseudofolliculitis of the beard. *Arch Dermatol* 74:533-542, 1956.
2. Rook A, Wilkinson DS, Ebling FJG: *Textbook of Dermatology*. Philadelphia, FA Davis Co, 1969, p 612.
3. Pillsbury DM, Shelley WB, Kligman AM: *Dermatology*. Philadelphia, WB Saunders Co, 1956, pp 496-497.
4. Kligman AM, Mills OH: Pseudofolliculitis of the beard and topically applied tretinoin. *Arch Dermatol* 107:551-552, 1973.
5. Department of the Army Technical Bulletin: *Pseudofolliculitis of the beard*. Dept of the Army, Washington, 1973.
6. Wong WK: *Clipper shave program outline*. USAF Hospital, Clark, Philippines, 1975.

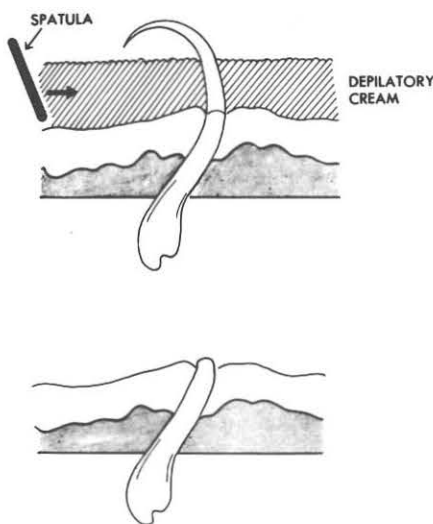


FIGURE 7. The chemical depilatory and whiskers are removed with a spatula (top), leaving a blunt-ended whisker that cannot repenetrate the skin (bottom).

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